

EXHIBIT A

REPORT ON STEREOTYPING AND BIAS

IN THE MATTER OF

EVDOKIA NIKOLOVA, PH.D.

v.

UNIVERSITY OF TEXAS AT AUSTIN

UNITED STATES DISTRICT COURT

WESTERN DISTRICT OF TEXAS, AUSTIN DIVISION

CASE NO. 1:19-cv-00877-RP

Report prepared by Dr. Peter Glick, Ph.D.

April 19, 2021

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I, Peter Glick, have been retained by the Crews Law Firm, P.C., counsel for the Plaintiff, in the case of *Evdokia Nikolova v University of Texas at Austin* to issue a report on the science of stereotyping, bias, and discrimination.

I. BACKGROUND AND QUALIFICATIONS

I am the Henry Merritt Wriston Professor in the Social Sciences and a Full Professor of Psychology at Lawrence University in Appleton, WI, having joined the faculty in 1985 shortly after earning my Ph.D. in social psychology at the University of Minnesota. In addition, I became a Senior Scientist with the NeuroLeadership Institute in 2018. I have co-edited two books on prejudice,¹ co-authored a text on the social psychology of gender and sexism,² and authored or co-authored more than 80 professional papers (peer-reviewed journal articles and chapters in edited books) on prejudice, stereotypes, and discrimination, including comprehensive reviews of sex discrimination in the workplace.³

My work is highly cited by other scholars, with over 40,000 citations according to *Google Scholar*, indicating my work's wide acceptance and influence in the science of stereotyping and discrimination. My work has been recognized through scientific awards. Susan T. Fiske of Princeton University and I received the 1995 Gordon Allport Prize for the best paper

¹Dovidio, J. F., Glick, P., & Rudman, L. A. (Eds.). (2005). *On the Nature of Prejudice: 50 Years After Allport*. Malden, MA: Blackwell Publishing.

Dovidio, J. F., Hewstone, M., Glick, P. & Esses, V. M. (Eds.). (2010). *The SAGE Handbook of Prejudice, Stereotyping, and Discrimination*. New York: Sage.

² Rudman, L. A., & Glick, P. (2008). *The Social Psychology of Gender: How Power and Intimacy Shape Gender Relations*. New York: Guilford Press.

³ Glick, P., & Fiske, S. T. (2008). Sex discrimination: The psychological approach. To appear in: F. J. Crosby, M. S. Stockdale, and S. A. Ropp (Eds.). *Sex Discrimination in the Workplace*. Malden, MA: Blackwell.

Rudman, L. A., Glick, P., & Phelan, J. E. (2008). From the laboratory to the bench: Gender stereotyping research in the courtroom. In E. Borgida & S. T. Fiske (Eds.). *Beyond commonsense: Psychological science in the courtroom* (pp. 83-101). Malden, MA: Blackwell Publishing.

of the year on intergroup relations for developing ambivalent sexism theory and an associated measurement instrument, the Ambivalent Sexism Inventory (ASI).⁴ Since its publication in 1996, to my knowledge the ASI has been administered to hundreds of thousands of people in more than 65 nations around the world.⁵ Another paper (coauthored with Amy Cuddy, Harvard University, and Susan Fiske, Princeton University) on the Stereotype Content Model received an honorable mention for the 2005-06 Allport Prize.⁶ In 2009, the *Harvard Business Review* recognized the Stereotype Content Model as a “breakthrough idea for 2009.”⁷ The Stereotype Content model is recognized as a powerful theory about how and why stereotypes differ across various social groups, with implications for the different forms of bias (e.g., paternalism versus contempt) that groups receive. In 2011, I received Lawrence University’s *Excellence in Scholarship* award for outstanding research contributions.

I am regularly invited to present my work at academic institutions and to wider audiences. Recent invited talks include Harvard Business School, Harvard Kennedy School, and a keynote address for corporate partners of Stanford University’s VMware Women’s Leadership Innovation Lab. I have been appointed, at various times, to five scientific journal editorial boards (including the *Journal of Personality and Social Psychology*, an APA publication considered the top journal in social psychology). Psychology organizations have recognized my scientific contributions through election as a Fellow. These include the largest and most prestigious

⁴ Glick, P. & Fiske, S. T. (1996). The Ambivalent Sexism Inventory: Differentiating hostile and benevolent sexism. *Journal of Personality and Social Psychology*, 70, 491-512

⁵ Glick, P. et al. (2000). Beyond prejudice as simple antipathy: Hostile and benevolent sexism across cultures. *Journal of Personality and Social Psychology*, 79, 763-775.

Glick, P. et al. (2004). Bad but bold: Ambivalent attitudes toward men predict gender inequality in 16 nations. *Journal of Personality and Social Psychology*, 86, 713-728.

⁶ Cuddy, A. J. C., Fiske, S. T., & Glick, P. (2007). The BIAS Map: Behaviors from Intergroup Affect and Stereotypes. *Journal of Personality and Social Psychology*, 92, 631-648.

⁷ See <https://hbr.org/2009/02/breakthrough-ideas-for-2009>

organizations in psychology (the *American Psychological Association* and the *Association for Psychological Science*) as well as more specialized societies (the *Society for Personality and Social Psychology*, *Society for the Psychological Study of Social Issues*, and the *Society for the Psychology of Women*, and the *Society of Experimental Social Psychology*). I have served in elected leadership positions in two societies, the executive councils of the *Society of Experimental Social Psychology* and *Society for the Psychological Study of Social Issues* and as President of the former society in 2009. My Curriculum Vitae is attached (Attachment A), which list my prior experience as an expert witness (see final pages of Vita).

II. TYPE OF TESTIMONY

I will provide “social framework” testimony⁸ to inform the decision makers in this case about empirically validated principles concerning the operation of stereotypes and bias that can, in turn, lead to workplace discrimination via double-standards toward women as compared to men. Additionally, I will explain the biases that occur when women become pregnant, have young children, and use workplace accommodation policies offered by their employer to accommodate pregnancy and caregiving. Social psychological and organizational research provides a scientific knowledge base illuminating the forms stereotyping and discrimination take, the circumstances that elicit stereotyping and bias, and their relation to discriminatory behavior. This information can substantially supplement decision-makers’ knowledge, going beyond common assumptions about how stereotypes and biases operate.⁹

Social framework testimony aims to inform decision-makers about relevant, scientifically validated principles. This is not the same as performing diagnostic tests (e.g., personality tests or a systematic investigation into corporate climate) for individuals or organizations named in a legal case. In the context of ongoing litigation, the scientific integrity of such tests would be fatally compromised due to participants’ awareness of a lawsuit naming them or coworkers, as well as the organization that employs them, as defendants. Social scientific research on stereotyping and discrimination normally involves voluntary participants who receive assurances (which they can rely on) that their responses are anonymous and confidential. It is unlikely that researchers could obtain candid and uncensored self-reports of attitudes from employees who are

⁸Mohahan, J., & Walker, L. (1993). Social science research in law: A new paradigm. *American Psychologist*, 6, 465-472.

⁹Krieger, L. H. (2004). The intuitive psychologist behind the bench: Models of gender bias in social psychology and employment discrimination law. *Journal of Social Issues*, 60, 835-848.

aware that the research is related to a pending lawsuit against the organization that employs them. Thus, concerns about scientific validity (apart from the prohibitive financial costs) do not recommend mounting an organizational investigation using standard social scientific techniques.

In sum, my report informs trial decision makers about *principles of stereotyping, bias, and discrimination that have been established with scientific certainty* based on well accepted empirical methodologies in psychology. These principles provide an interpretive framework that can aid case decision-makers to make more informed judgments about whether or not discrimination occurred. Information I provide goes substantially beyond common-sense knowledge in several ways. For example, research reveals how bias depends on situational context (e.g., role expectations for a job) and targets specific judgment dimensions (e.g., a woman's perceived commitment to the job). Compared to common-sense knowledge, scientific research reveals a much more nuanced picture of how stereotypes and bias work, including when and toward whom they tend to occur.

Social framework testimony has been widely accepted by the courts, including the Supreme Court (e.g., in *Hopkins v. Price-Waterhouse*, in which my scientific collaborator Susan T. Fiske was the stereotyping expert).¹⁰ In *Tuli v Brigham & Women's Hospital*, Judge Nancy Gertner, U.S.D.C, denied Defendant's motion to exclude my social framework testimony on stereotyping, endorsing its admissibility and value. She noted that:

"Professor Glick's testimony...provides the jury with a context for considering the evidence before it, as opposed to a roadmap to a particular outcome. He expressly refuses to come to a conclusion about whether there has been discrimination in this case because such an opinion is for the jury and because he

¹⁰ *Price-Waterhouse v. Hopkins*, 109 S. Ct. 1775 (1989).

concludes -- appropriately -- that it is not possible to make any decision to a reasonable degree of scientific certainty about a real world case. In this regard, Professor Glick's testimony is not unlike social psychological testimony about eyewitness identification. Such testimony does not tell the jury what to decide in any given case; it only tells them what to consider. See United States v. Hines, 55 F. Supp. 2d 62 (D. Mass. 1999). ”¹¹

Judge Gertner further stated that “While defendants challenge him for not opining about the case at bar, that is in fact a strength of his testimony, not a weakness. He indicates that such an opinion is for the decisionmakers in this case, namely the jury.”¹² Judge Gertner’s decision defines the “guardrails” within which a social framework expert should operate. My report will stay within the bounds Judge Gertner defined and ultimately leave the final decision up to the appropriate case decision-makers.

Consistent with Judge Gertner’s characterization, I provide scientifically validated information about stereotyping, bias, and discrimination to aid case decision-makers. Here, I review research findings based on well accepted scientific methodologies. However, consistent with Judge Gertner’s characterization of the strength of my testimony in *Tuli v Brigham & Women’s Hospital*, I avoid encroaching on the case decision-makers’ responsibility to determine credibility for disputed claims and to make the ultimate determination about whether discrimination occurred.

¹¹ MEMORANDUM RE: MOTION TO EXCLUDE EXPERT TESTIMONY, January 6, 2009. Judge Nancy Gertner, United States District Court for the District of Massachusetts. Civil Action no. 07cv-12338-NG, p. 4.

¹² *Ibid*, p. 9.

III. DOCUMENTS REVIEWED IN PREPARATION OF THIS REPORT

Below is a list of documents regarding the current case that I have reviewed:

- Plaintiff's First Amended Complaint, Filed 07/02/2020, Case 1:19-cv-00877-RP
- Nikolova Do Not Promote Notification (letter from Sharon Wood dated 02/15/2019)
- Documents with Bates Numbers P000001 to P000146 (various tenure review documents, including Dean's Assessment, Chair's letter in support of promotion, and Budget Council recommendations)
- Nikolova Complaint to CCAFR dated 03/25/2019, Bates numbers UT Austin_00616 to UT Austin_00695
- CCAFR Report on Nikolova Complaint, Bates numbers UT Austin_00696 to UT Austin_00713
- President's Response to CCAFR report, Bates numbers UT Austin_00714 – UT Austin_00718
- 2020 Pinnacle Award Winner Interview of Dean Sharon Wood, retrieved from: <https://www.hartenergy.com/exclusives/2020-pinnacle-award-winner-dr-sharon-l-wood-university-texas-186588>

IV. SCIENTIFIC RESEARCH ON STEREOTYPING AND DISCRIMINATION

Scientific research on stereotyping is well established, having been systematically investigated for many decades, beginning in the 1920s and 1930s,¹³ but gaining more social scientific attention, with increasingly sophisticated methods of investigation, in the last 60 years.¹⁴ The study of stereotypes (beliefs about social groups), prejudice (biased feelings toward social groups), and discrimination (differential treatment of social groups) has become a major subfield of social psychology¹⁵ and is an increasingly frequent research topic among applied and organizational psychologists.¹⁶ Stereotyping research has been conducted both in the laboratory and naturalistic field settings.¹⁷ Basic principles first established in the laboratory have been shown to generalize to other populations and settings (e.g., working adults in the business world; large organizations such as the Armed Forces).¹⁸ For example, laboratory research showing that women, compared to men, tend to receive equal praise for performance but are denied tangible

¹³Katz, D., & Braly, K. W. (1933). Racial stereotypes of 100 college students. *Journal of Abnormal Social Psychology*, 28, 280-290

¹⁴Fiske, S.T. (1998). Prejudice, stereotyping and discrimination. In D. T. Gilbert, S. T. Fiske, and G. Lindzey (Eds.). *The Handbook of Social Psychology* (4th ed). New York: McGraw-Hill.

¹⁵*Ibid.*

¹⁶Koch, A. J., D'Mello, S. D., & Sackett, P. R. (2015). A meta-analysis of gender stereotypes and bias in experimental simulations of employment decision making. *Journal of Applied Psychology*, 100, 128.

¹⁷Riach, P. A., & Rich, J. (2002). Field experiments of discrimination in the market place. *The economic journal*, 112(483), F480-F518.

¹⁸ Glick, P., Zion, C., & Nelson, C. (1988). What mediates sex discrimination in hiring decisions? *Journal of Personality and Social Psychology*, 55, 178-186;
Glick, P. (1991). Trait-based and sex-based discrimination in occupational prestige, occupational salary, and hiring. *Sex Roles*, 25, 351-378;
Heilman, M E. (2001). Description and prescription: How gender stereotypes prevent women's ascent up the organizational ladder. *Journal of Social Issues*, 57, 657-674;
Heilman, M. E., et al. (2004). Penalties for success: Reactions to women who succeed at male-typed gender tasks. *Journal of Applied Psychology*, 89, 416-427.
Pryor, J. B., et al. (1995). A social psychological model for predicting sexual harassment. *Journal of Social Issues*, 51, 69-84.

rewards (such as higher pay or a promotion)¹⁹ corresponds to findings in field studies that even though women receive similar or better performance evaluations in actual jobs, managers rate them as lower on “promotability.” Specifically, in 6 studies involving over 4,000 individuals that included *both* supervisors’ performance evaluations and ratings of subordinates’ “promotion potential,” even though women were generally rated as performing better than men, *supervisors were more likely to rate men as having higher promotion potential than women.*²⁰ An even more comprehensive meta-analysis involved close to half a million workers in 142 field studies across various work settings, representing 30 years of data examined how organizational rewards (e.g., bonuses, raises, promotions) were allocated found that women were rated as performing as well as men, but were denied rewards relative to men. Specifically, “sex differences in organizational rewards were almost 14 times larger than sex differences in performance evaluations” (p. 1532). These disparities were stronger in jobs dominated by men and in high status roles.²¹

Stereotyping and discrimination represent complex processes that depend on situational context, organizational climate and practices, individual attitudes, and other factors. Some factors can lessen the likelihood that unfair biases will impact decisions and behavior. For example, organizations can take steps to limit bias in personnel decisions by relying on objective information and behavioral benchmarks rather than subjective opinions as well as by holding

¹⁹ Vescio, T. K., Gervais, S. J., Snyder, M., & Hoover, A. (2005). Power and the creation of patronizing environments: the stereotype-based behaviors of the powerful and their effects on female performance in masculine domains. *Journal of personality and social psychology*, 88(4), 658.

²⁰ Roth, P. L., Purvis, K. L., & Bobko, P. (2012). A meta-analysis of gender group differences for measures of job performance in field studies. *Journal of Management*, 38(2), 719-739.

²¹ Joshi, A., Son, J., & Roh, H. (2015). When can women close the gap? A meta-analytic test of sex differences in performance and rewards. *Academy of Management Journal*, 58, 1516–1545.

decision-makers accountable for making unbiased decisions.²² Other factors exacerbate the likelihood that stereotyping and discrimination will occur. When women or minority group members are underrepresented²³ they tend to be viewed as a “poorer fit” for a job than men or majority group members.²⁴ In historically male dominated fields, evaluators tend to give preference to men (e.g., be more likely to lend them “benefit of the doubt” on possible weaknesses)²⁵ and impose higher performance standards on women.²⁶

SEX STEREOTYPES AND DISCRIMINATION

Stereotypes are category-based expectations about others. Sex stereotypes are beliefs about men and women’s traits rooted in historical differences in power and roles. Traditionally, men have possessed more status and power than women, and were expected to be the main breadwinners for their families; by contrast, women were confined to child-rearing and domestic work, and expected to be subordinate to men.²⁷ Although gender roles have changed, gender stereotypes have remained remarkably stable on two core dimensions: agency (i.e., assertive,

²²Koch et al. (2015), *Op cit.*

²³Gorman, *op cit.*

Cohen, L. E., Broschak, J. P., & Haveman, H. A. (1998). And then there were more? The effect of organizational sex composition on the hiring and promotion of managers. *American Sociological Review*, 711-727.

²⁴Eagly, A. H., & Karau, S. J. (2002). Role congruity theory of prejudice toward female leaders. *Psychological review*, 109(3), 573.

²⁵Uhlmann, E. L., & Cohen, G. L. (2005). Constructed criteria: Redefining merit to justify discrimination. *Psychological Science*, 16(6), 474-480.

Dovidio, J. F., & Gaertner, S. L. (2000). Aversive racism and selection decisions: 1989 and 1999. *Psychological science*, 11(4), 315-319.

²⁶Gorman, E. H., & Kmec, J. A. (2007). We (have to) try harder: Gender and required work effort in Britain and the United States. *Gender & Society*, 21(6), 828-856.

²⁷Rudman, L. A., & Glick, P. (2008). *The Social Psychology of Gender: How Power and Intimacy Shape Gender Relations*. New York: Guilford Press.

ambitious) and communality (i.e., warm, nurturing).²⁸ Data from representative national polls from the 1940s to 2018²⁹ reveal that gender stereotypes continue to assign agency more to men than women, and that the stereotype of women as more communal than men has become stronger over time. Stereotypes no longer deny overall competence (e.g., intelligence) to women, presumably due to their increasing paid workforce participation over the past 80 years. However, while perceived as equally intelligent to men overall, women remain stereotyped as less competent than men in occupations and on tasks and in fields that remain male dominated.³⁰

Stereotypes reflect and function to justify and reinforce gender roles and men's greater power, which remains entrenched in business and government organizations.³¹ Gender stereotypes assign women supportive traits associated with nurturing, such as *empathetic, kind, sensitive*, as well lower status or subordinate traits such as *yielding, agreeable, emotional, impressionable, gullible, insecure, and naïve*; by contrast, stereotypes assign men high-power, dominance-oriented traits such as *decisive, aggressive, forceful, controlling, dominating, and arrogant* that suit them for positions of power.³² Men are generally accorded more status and,

²⁸Haines, E. L., Deaux, K., & Lofaro, N. (2016). The times they are a-changing... or are they not? A comparison of gender stereotypes, 1983–2014. *Psychology of Women Quarterly*, 40(3), 353-363.

²⁹Eagly, A. H., Nater, C., Miller, D. I., Kaufmann, M., & Sczesny, S. (2019). Gender stereotypes have changed: A cross-temporal meta-analysis of US public opinion polls from 1946 to 2018. *American Psychologist*.

³⁰Heilman, M. E., Wallen, A. S., Fuchs, D., & Tamkins, M. M. (2004). Penalties for success: reactions to women who succeed at male gender-typed tasks. *Journal of applied psychology*, 89(3), 416.

³¹World Economic Forum (2020). Global gender gap report. Retrieved from http://www3.weforum.org/docs/WEF_GGGR_2020.pdf.

³²Prentice, D. A., & Carranza, E. (2002). What women and men should be, shouldn't be, are allowed to be, and don't have to be: The contents of prescriptive gender stereotypes. *Psychology of women quarterly*, 26(4), 269-281.

Rudman, L. A., Moss-Racusin, C. A., Glick, P., & Phelan, J. E. (2012). Reactions to vanguards: Advances in backlash theory. In *Advances in experimental social psychology* (Vol. 45, pp. 167-227). Academic Press.

therefore, more credibility and influence than women.³³ As reviewed below, gender stereotypes skew how perceivers interpret and remember subsequent information via confirmation biases.

In addition, people stereotype women as more emotional.³⁴ For example, research participants viewed a female (but not a male leader) who exhibited anger as more “out of control,” leading them to recommend paying her less and according her less power.³⁵ The female emotionality stereotype leads people to view women as less suited to leadership positions in the workplace,³⁶ as well as “overly sensitive” and likely to exaggerate problems they experience in the workplace.³⁷ Hostile sexist attitudes, which have been linked to workplace discrimination against women in male-dominated occupations,³⁸ explicitly include beliefs such as: “Most women interpret innocent remarks or acts as being sexist”; “Women are too easily offended”; “Women exaggerate problems they have at work”; and “When women lose to men in a fair competition, they typically complain about being discriminated against.”³⁹ Emotionality stereotypes combine with hostile sexist beliefs to undermine women’s perceived credibility when it comes to workplace complaints (e.g., about being harassed, treated unfairly, or bullied).

³³ Ridgeway, C. L. (2001). Gender, status, and leadership. *Journal of Social issues*, 57(4), 637-655.

³⁴ Shields, S. A., & Shields, S. A. (2002). *Speaking from the heart: Gender and the social meaning of emotion*. Cambridge University Press.

³⁵ Brescoll, V. L., & Uhlmann, E. L. (2008). Can an angry woman get ahead? Status conferral, gender, and expression of emotion in the workplace. *Psychological Science*, 19(3), 268–275.

³⁶ Timmers, M., Fischer, A. H., & Manstead, A. S. R. (2003). Ability versus vulnerability: Beliefs about men's and women's emotional behaviour. *Cognition & Emotion*, 17(1), 41–63

³⁷ Glick, P., & Fiske, S. T. (1996). The ambivalent sexism inventory: Differentiating hostile and benevolent sexism. *Journal of personality and social psychology*, 70(3), 491-501.

³⁸ Masser, B. M., & Abrams, D. (2004). Reinforcing the glass ceiling: The consequences of hostile sexism for female managerial candidates. *Sex Roles*, 51(9-10), 609-615.

³⁹ Glick & Fiske (1996), *op cit*.

SEX STEREOTYPES BIAS PERCEPTIONS OF OTHERS' BEHAVIOR

Gender represents a primary category by which we classify other individuals: it's the first social category into which people are classified after (and even before) birth (e.g., the first question people typically ask about a newborn: "Is it a boy or a girl?"). Children learn to use gender to label others at an extremely young age (about a year and a half old, before awareness of other social categories such as race).⁴⁰ Both children⁴¹ and adults⁴² automatically use gender categorization to classify others; in turn, gender classification elicits well-learned stereotypes that bias expectations about the "appropriate" or expected behaviors for each gender.⁴³ Stereotypes affect impressions due to confirmation biases in how people interpret and remember information about others.⁴⁴ That is, biased perceivers view an individual's behavior through a distorted, stereotypical lens.

People tend to interpret mixed or ambiguous behaviors in stereotype-consistent ways. When behavior (as may often be the case in real world situations) is ambiguous or inconsistent, stereotype-based biases skew interpretations, leading people to believe that their initial expectations are supported by evidence.⁴⁵

⁴⁰ Zosuls, K. M., Ruble, D. N., Tamis-LeMonda, C. S., Shrout, P. E., Bornstein, M. H., & Greulich, F. K. (2009). The acquisition of gender labels in infancy: Implications for gender-typed play. *Developmental Psychology*, 45(3), 688.

⁴¹ Bennett, M., Sani, F., Hopkins, N., Agostini, L., & Malucchi, L. (2000). Children's gender categorization: An investigation of automatic processing. *British Journal of Developmental Psychology*, 18(1), 97-102.

⁴² Taylor, S. E., Fiske, S. T., Etcoff, N. L., & Ruderman, A. J. (1978). Categorical and contextual bases of person memory and stereotyping. *Journal of personality and social psychology*, 36(7), 778.

⁴³ Hill, S. E., & Flom, R. (2007). 18-and 24-month-olds' discrimination of gender-consistent and inconsistent activities. *Infant Behavior and Development*, 30(1), 168-173.

⁴⁴ Fiske, S. T. (1998). *Op. Cit.*

⁴⁵ Costabile, K. A., & Madon, S. (2019). Downstream effects of dispositional inferences on confirmation biases. *Personality and Social Psychology Bulletin*, 45, 557-570.

Stereotypes promote *dispositional* explanations of others' behavior,⁴⁶ assuming underlying traits and motives. To illustrate, consider the difference between merely describing a person's behavior versus making an inference about *why* he or she did it: "She made a complaint about a co-worker" describes a behavior without inferring the motives for the behavior. Dispositional (i.e., personality) inferences leap to explaining "why" someone did something via conjectures about an individual's personality and motivations. The same behavior can easily lead to more positive or more negative inferences. For example, one might infer that "She made a complaint because she's someone who stands up for herself" (a positive construal) versus "She made a complaint because she's arrogant and bitter" (a negative construal). Stereotypes predispose people to leap from observed behavior to dispositional inferences. Confirmation bias then distorts inferences about further behavior, falsely increasing people's certainty about initial inferences.⁴⁷

When people use stereotypes, they are less likely to consider situational explanations. For example, research shows that people tend to excuse men's emotionality as situational ("He's having a bad day") while attributing the same emotional display by a woman to an underlying disposition ("She's an emotional person").⁴⁸ In two experiments, researchers presented male and female faces (one at a time) on a computer screen. The faces exhibited equivalent, moderately intense emotional expressions (e.g., sadness, fear, disgust). Each face was paired with a situational reason for the emotion (e.g., *Was yelled at by the boss*, *Just attended a family funeral*, *Heard footsteps in the dark*). Participants were more likely to attribute men's emotions to the

⁴⁶ Pettigrew, T. F. (1979) the ultimate attribution error: Extending Allport's cognitive analysis of prejudice, *Personality and Social Psychology Bulletin*, 5, 461-476

⁴⁷ Costabile & Madon, S. (2019). *Op cit*.

⁴⁸ Barrett, L. F., & Bliss-Moreau, E. (2009). She's emotional. He's having a bad day: Attributional explanations for emotion stereotypes. *Emotion*, 9(5), 649.

situation (e.g., he was provoked to anger by the situation) and to conclude that women's emotions reflected her disposition (e.g., she's an angry person). These differences held across expressions of various emotions; sadness, fear, and anger.

In general, research shows that stereotype-based dispositional inferences exacerbate stereotype-confirmation processes. Specifically, once a perceiver makes an initial, stereotyped snap judgment about another person's personality (e.g., "She's emotional") they are especially likely to: (a) remember information that "fits" (rather than information that contradicts) their impressions and (b) interpret ambiguous information about others in ways that support their stereotyped impression.⁴⁹ By fostering inferences about personality and motives, stereotypes can produce cascading effects, biasing interpretation of subsequent encounters.⁵⁰

People are not oblivious to information about an individual ("individuating information") that clearly contradicts their stereotypes. For example, racial stereotypes that assign less intelligence to Black than to White people can be punctured by clear individuating information (e.g., aptitude test scores) about an individual college applicant (e.g., an exceptionally strong Black applicant will be seen as equally intelligent as a similar White candidate).⁵¹ However, when information is more mixed or ambiguous (e.g., the candidate's GPA is high but test scores are mediocre or low), stereotyped assumptions continue to affect perceptions and decisions.⁵² Further, individuating information can reinforce stereotypes, such as when women become

⁴⁹ *Op cit.*

⁵⁰ Fiske, S. T. (1998). *Op. Cit.*

⁵¹ Rubinstein, R. S., Jussim, L., & Stevens, S. T. (2018). Reliance on individuating information and stereotypes in implicit and explicit person perception. *Journal of Experimental Social Psychology*, 75, 54-70.

⁵² Dovidio, J. F., & Gaertner, S. L. (2000). Aversive racism and selection decisions: 1989 and 1999. *Psychological Science*, 11(4), 315-319.

mothers. Because motherhood represents a stereotypically feminine role, as reviewed below, people perceive women who have children in a more stereotypically feminine manner.

In sum, stereotype effects are not absolute or impervious to reality, but operate like a “thumb on the scale” leading to biased perceptions. That is, stereotypes typically shade or bias perceptions in a manner more like augmented reality than a completely made up fantasy. People respond to “evidence” about another person, but do so in biased ways unless the evidence is completely clear-cut or they take steps to guard against stereotyped inference and bias.

GENDERED DOUBLE STANDARDS

Stereotypes set up different expectations for women and men, leading to double standards in how people evaluate individual women versus men. High status roles are typically associated both with stereotypically masculine traits (e.g., ambition, assertiveness, decisiveness)⁵³ and with men as “role incumbents” (e.g., when asked to “think of a scientist,” it’s likely the person who pops to mind is a man not a woman).⁵⁴ Both types of associations can lead to bias against women because people presume women do “not have what it takes” (i.e., the traits required) to fulfill the role and because women may also simply not seem to “fit” merely because people have a difficult time viewing a woman in the role.⁵⁵ People also generally accord women lower status and authority than men.⁵⁶ As a result, coworkers tend not to accord women the same legitimacy

⁵³Koenig, A. M., Eagly, A. H., Mitchell, A. A., & Ristikari, T. (2011). Are leader stereotypes masculine? A meta-analysis of three research paradigms. *Psychological bulletin*, 137(4), 616.

⁵⁴Miller, D. I., Nolla, K. M., Eagly, A. H., & Uttal, D. H. (2018). The development of children's gender-science stereotypes: A meta-analysis of 5 decades of US Draw-a-Scientist studies. *Child Development*, 89(6), 1943-1955.

⁵⁵Eagly, A. H., & Karau, S. J. (2002). Role congruity theory of prejudice toward female leaders. *Psychological review*, 109(3), 573.

⁵⁶Ridgeway, C. L. (2001). Gender, status, and leadership. *Journal of Social issues*, 57(4), 637-655.

as men, especially in male dominated fields.⁵⁷ In particular, women in masculine fields have to disprove lower expectations due to stereotypes.⁵⁸ In work roles dominated by men, research shows that women have to work harder and perform better than men to prove their competence.⁵⁹

DISCRIMINATION IN STEM FIELDS

STEM (Science, Technology, Engineering, and Math) fields have traditionally been male dominated, and ample research demonstrates considerable discrimination against women in STEM.⁶⁰ Because women's underrepresentation in many STEM areas impedes scientific productivity by failing fully to develop potential scientific talent, the United States' most prestigious science organizations (e.g., *National Science Foundation* and *National Academy of Sciences*) have made understanding barriers to women in science a priority. A recent paper commissioned by the *National Academy of Sciences* reviewed extant research on discrimination against women in STEM fields, concluding that barriers go beyond a "pipeline" problem (i.e., insufficient numbers of women entering the field) or a "chilly" climate. Rather, the authors concluded that women have to run a "gauntlet" of active opposition akin to having to "run between rows of people who are hitting them with sticks. Across STEM, the people 'hitting' women are their coworkers, their students, and their bosses..."⁶¹ The authors acknowledge that

⁵⁷Vial, A. C., Napier, J. L., & Brescoll, V. L. (2016). A bed of thorns: Female leaders and the self-reinforcing cycle of illegitimacy. *The Leadership Quarterly*, 27(3), 400-414.

⁵⁸Foschi, M. (2000). Double standards for competence: Theory and research. *Annual review of Sociology*, 26(1), 21-42.

⁵⁹Gorman, E. H., & Kmec, J. A. (2009). Hierarchical rank and women's organizational mobility: Glass ceilings in corporate law firms. *American Journal of Sociology*, 114(5), 1428-1474.

⁶⁰Rodrigues, M. A., & Clancy, K. B. H. (2019). A comparative examination of research on why women are more underrepresented in some STEM disciplines compared to others, with a particular focus on computer science, engineering, physics, mathematics, medicine, chemistry, and biology. Commissioned paper by the *National Academy of Sciences*. Retrieved from www.nap.edu/resource/25585/Commissioned_Paper_Rodrigues.pdf

⁶¹Rodrigues & Clancy (2019), *op cit.*, p. 1

many of “the hits may be mild, but they are punishing in their frequency,” impeding women’s progress in science and causing many to leave the field.⁶² A *National Center for Science and Engineering Statistics* (NCSES) 2019 report suggested that women face particularly strong barriers in engineering. Across STEM fields “Engineering [has] one of the lowest shares of female degree recipients,”⁶³ represents “one of the most sex-segregated nonmilitary professions in the world,” and has remarkably high attrition for women, such that “by the time both women and men are in their 50s, women are half as likely to remain in engineering compared to men.”⁶⁴ Women face biases at every stage of evaluation in STEM careers and “must perform better for equal consideration.”⁶⁵ Empirical research shows biases in recruitment and salary,⁶⁶ funding,⁶⁷ willingness to mentor female students,⁶⁸ and evaluations of female scientists.⁶⁹

⁶² *Ibid*, p. 2.

⁶³ National Center for Science and Engineering Statistics (2019). Women, minorities and persons with disabilities in science and engineering, 2019 report. *National Science Foundation*. Retrieved from: <https://ncses.nsf.gov/pubs/nsf19304/digest>

⁶⁴ Singh, R., Zhang, Y., Wan, M., & Fouad, N. A. (2018). Why do women engineers leave the engineering profession? The roles of work–family conflict, occupational commitment, and perceived organizational support. *Human resource management*, 57(4), 901-914.

⁶⁵ Rodrigues & Clancy, *op cit*. p. 6.

⁶⁶ Moss-Racusin, C. A., Dovidio, J. F., Brescoll, V. L., Graham, M. J., & Handelsman, J. (2012). Science faculty’s subtle gender biases favor male students. *Proceedings of the national academy of sciences*, 109(41), 16474-16479.

⁶⁷ Hechtman, Lisa A., et al. "NIH funding longevity by gender." *Proceedings of the National Academy of Sciences* 115.31 (2018): 7943-7948.

Pohlhaus, J. R., Jiang, H., Wagner, R. M., Schaffer, W. T., & Pinn, V. W. (2011). Sex differences in application, success, and funding rates for NIH extramural programs. *Academic Medicine*, 86(6), 759.

⁶⁸ Milkman, K. L., Akinola, M., & Chugh, D. (2015). What happens before? A field experiment exploring how pay and representation differentially shape bias on the pathway into organizations. *Journal of Applied Psychology*, 100(6), 1678.

⁶⁹ Witteman, H. O., Hendricks, M., Straus, S., & Tannenbaum, C. (2018). Female grant applicants are equally successful when peer reviewers assess the science, but not when they assess the scientist. *Biorxiv*, 232868.

DISCRIMINATION FROM BELOW: BIAS IN TEACHING EVALUATIONS

A meta-analysis (a review that statistically combines existing studies to determine whether findings hold up across studies) examined the relationship between student evaluations and student performance. This review revealed that student evaluations of their professors, at best, have a small relationship to measures of student learning. Further, if one considers only *objective* measures of performance (e.g., how students perform on tests assessing mastery of facts) rather than students' subjective perceptions about "how much I learned," students' ratings of their professors bear no relation to their mastery of the material.⁷⁰ In sum presuming that effective teaching entails student learning, the cumulative research suggests that student evaluations have little validity as a measure of teaching effectiveness. If student evaluations do not assess actual teaching effectiveness, what do they assess? In other words, what determines students' evaluations?

Research suggests various extraneous factors affect student evaluations, including the professor's gender. For example, students give professors higher ratings in smaller (versus larger) classes,⁷¹ when the professor gives them a higher (versus lower) grade,⁷² and in elective (versus required) classes.⁷³ Further, professors tend to receive lower ratings in courses that (a)

⁷⁰ Clayson, D. E. (2009). Student evaluations of teaching: Are they related to what students learn? A meta-analysis and review of the literature. *Journal of Marketing Education*, 31(1), 16-30.

⁷¹ Bedard, K., & Kuhn, P. (2008). Where class size really matters: Class size and student ratings of instructor effectiveness. *Economics of Education Review*, 27(3), 253-265.

⁷² Krautmann, A. C., & Sander, W. (1999). Grades and student evaluations of teachers. *Economics of Education Review*, 18(1), 59-63.

⁷³ Marsh, H. W., & Roche, L. A. (1997). Making students' evaluations of teaching effectiveness effective: The critical issues of validity, bias, and utility. *American psychologist*, 52(11), 1187.

involve math⁷⁴ and (b) are taught by a female (versus male) professor.⁷⁵ Given that math content and female professors are associated with lower ratings, it is not surprising that female (compared to male) STEM professors receive lower average teaching evaluations.⁷⁶ Bias disfavoring female (compared to male) professors tends to be stronger among male students (who tend to be the majority in many STEM fields), despite evidence that students learn equally well from female and male professors.⁷⁷

Most research comparing teaching ratings for male and female instructors has used naturalistic comparisons (e.g., do male and female instructors receive different ratings on platforms such as “rate my professor.com”?). Although researchers use sophisticated statistical techniques to try to control for various “confounding variables,” various factors (e.g., different teaching styles, academic rank, subject taught, whether courses are required or elective, etc.) that may potentially correlate with gender could account for differences in ratings of male and female professors. Therefore, researchers have sought to create more precise comparisons by creating studies that attempt to keep everything but professor gender constant.

For example, one study compared ratings for male and female instructors who taught sections of the same on-line introductory course.⁷⁸ Only the instructor (not the materials) varied between the course sections, reducing alternative explanations for rating differences. Students rated the female instructor significantly lower than the male instructor on a 1 to 5 teaching

⁷⁴ Uttil, B., & Smibert, D. (2017). Student evaluations of teaching: teaching quantitative courses can be hazardous to one’s career. *PeerJ*, 5, e3299.

⁷⁵ Boring, A. (2017). Gender biases in student evaluations of teaching. *Journal of public economics*, 145, 27-41.

⁷⁶ MacNell, L., Driscoll, A., & Hunt, A. N. (2015). What’s in a name: Exposing gender bias in student ratings of teaching. *Innovative Higher Education*, 40(4), 291-303.

⁷⁷ Boring (2017). *Op cit.*

⁷⁸ Mitchell, K. M., & Martin, J. (2018). Gender bias in student evaluations. *PS: Political Science & Politics*, 51(3), 648-652.

evaluation scale, with an average rating of 3.44 (female instructor) versus 3.84 (male instructor). Further, students' open-ended comments toward the female (as compared to male) instructor focused more on appearance, imputed more negative personality traits, and demeaned her competence more often. Further, while most students referred to instructors as "professor," they were more likely to use the lower status term "teacher" when referring to the female instructor. Although more controlled than most studies, the researchers could not completely rule out differences in instructor demeanor as a potential reason for numerical rating differences.

Another study used an institutional feature – random assignment of students to course sections – to compare almost 20,000 students' ratings of various male and female instructors.⁷⁹ Because tests were centralized (rather than specific to instructor) the researchers were able to rule out grading differences as a reason for differences in evaluations. Grades and self-reported effort by students (hours studied) did not vary by instructor gender, suggesting that male and female instructors were equally effective. In other words, students worked as hard and performed as well on exams with female as compared to male instructors. Nevertheless, female instructors received significantly lower ratings than male instructors, especially from male students. Further, the effect was stronger in math-related courses (i.e., in STEM-related courses) and toward female instructors in earlier phases of their careers.

Although both studies above achieved relatively more control over extraneous variables compared, they represent "quasi-experiments" that do not quite achieve the total control a "true experiment" achieves (which keeps all possible alternative or "confounding" causes constant). A third study achieved experimental control by separating actual professor gender from how they

⁷⁹Mengel, F., Sauermann, J., & Zölitz, U. (2019). Gender bias in teaching evaluations. *Journal of the European Economic Association*, 17(2), 535-566.

presented their gender to students in an on-line course (which had no in-person or video contact). A male and female instructor each taught two sections of the same on-line course with identical materials while maintaining either a male or female instructor identity (e.g., the female instructor taught one section using a male first name and one using a female first name). The only contact with students occurred through an on-line learning system (via written comments) and email. The result: instructors' actual gender showed no effect (i.e., overall students rated the female and male instructor the same), but instructors' *perceived* gender affected student ratings. Both the male and the female instructor received significantly lower ratings when students *thought* the instructor was female as compared to male. On a 5-point rating scale (averaged across 12 items on which students rated the instructors), students gave the instructor a 4.24 as compared to a 3.70 rating when they perceived the instructor to be female.⁸⁰

In sum, both studies involving naturalistic comparisons and studies that have approached or achieved experimental control (allowing researchers more confidence in ruling out alternative explanations) show significant gender bias in students' evaluations of teaching (lower ratings for female compared to male instructors).

DISCRIMINATION FROM ABOVE:

FEMALE LEADERS IN STEM ALSO DISCRIMINATE AGAINST WOMEN

Theorists initially assumed that having female leaders involved in decision-making would counter discrimination in STEM and other masculine fields. However, absent a critical mass that approaches gender parity in representation, women (as compared to men) who achieve authority in masculine fields can be just as, and sometimes more likely to discriminate against women. For

⁸⁰MacNell, L., Driscoll, A., & Hunt, A. N. (2015). What's in a name: Exposing gender bias in student ratings of teaching. *Innovative Higher Education*, 40(4), 291-303.

example, in an “audit” study, science faculty at research universities received an application for a laboratory manager position. Researchers kept applicant qualifications constant, but varied whether the name (depending on random assignment) was male or female. Faculty rated the male as compared to similar female applicant higher on perceived competence, indicated more interest in hiring him, and suggested a higher salary, even though the female candidate had equivalent qualifications. The faculty member’s gender made no difference (i.e., female faculty were no less likely to discriminate than male faculty). Effect sizes for discrimination were moderate to large.⁸¹

Why do women in STEM discriminate against other women? Because “In fields that are male-dominated and stereotypically gendered as ‘male,’ women succeed by modeling the behavior of the successful men who train them.”⁸² Thus, women who “make it” in male-dominated fields face continuing pressures to prove their merit by exhibiting traits valued or idealized in their field. Going out on a limb to support other women threatens the esteem and status they have achieved. Thus, having personally experienced discrimination from men in their field does not necessarily motivate women who have risen through the ranks to use their position to support other women. In fact, research shows that reminders of past discrimination can lead senior women to distance themselves from junior women and to avoid advocating for policies aimed at gender equity as way to protect their own status.⁸³

Specifically, women who attain leadership roles in masculine fields tend to differentiate themselves from female subordinates. For example, female leaders rated themselves as higher in ambition and career commitment compared to female, but not to male, subordinates. This effect

⁸¹ Moss-Racusin et al. (2012), *op cit.*

⁸² Rodrigues & Clancy (2019), *op cit.*

⁸³ Derks, B., Van Laar, C., & Ellemers, N. (2016). The queen bee phenomenon: Why women leaders distance themselves from junior women. *The Leadership Quarterly*, 27(3), 456-469.

only increased when female leaders recalled the gender biases they had previously experienced in their field.⁸⁴

Specifically, research shows that senior academic women disparage junior women's commitment. Despite no self-reported difference between male and female doctoral students' commitment to career, female faculty members viewed female (compared to male) students as less committed to their work, whereas male faculty did not.⁸⁵ A recent study involving over 300 STEM faculty replicated this phenomenon, finding that senior female academic scientists: (a) described themselves as more masculine than women early in their STEM academic career, and (b) were more likely than senior male scientists to disparage junior women's career commitment (even though early career women indicated as much commitment as men).⁸⁶

Additional research supports the idea that female leaders in masculine fields are in a precarious position that pressures them to distance not only from other women and from feminine traits, but from promoting diversity initiatives. One study⁸⁷ examined boss and peer ratings of over 350 senior executives. For women (and minorities), but not white men, colleagues' perceptions of these executives' support for diversity (e.g., he or she "values working with a diverse group of people") predicted lower competence ratings. In a follow-up experiment,

⁸⁴Derks, B., Ellemers, N., Van Laar, C., & De Groot, K. (2011). Do sexist organizational cultures create the Queen Bee? *British Journal of Social Psychology*, 50(3), 519-535.

Derks, B., Van Laar, C., Ellemers, N., & De Groot, K. (2011). Gender-bias primes elicit queen-bee responses among senior policewomen. *Psychological Science*, 22(10), 1243-1249.

⁸⁵ Ellemers, N., van den Heuvel, H., de Gilder, D., Maass, A., & Bonvini, A. (2004). The underrepresentation of women in science: Differential commitment or the queen bee syndrome? *British Journal of Social Psychology*, 43(3), 315-338.

⁸⁶ Faniko, K., Ellemers, N., & Derks, B. (2020). The Queen Bee phenomenon in Academia 15 years after: Does it still exist, and if so, why?. *British Journal of Social Psychology*, e12408.

⁸⁷ Hekman, D. R., Johnson, S. K., Foo, M. D., & Yang, W. (2017). Does diversity-valuing behavior result in diminished performance ratings for non-white and female leaders?. *Academy of Management Journal*, 60(2), 771-797.

working adults received a scenario in which an executive made the final call on a hiring decision (when a hiring committee was evenly split), choosing a female (or a minority) candidate. The executive always cited the candidate's high test scores; additionally, depending on random assignment, he or she added that the chosen candidate "increases the gender (or racial) balance of our leadership team." Participants rated a female executive as lower in competence and performance when she explicitly supported diversity, compared to when she did not mention diversity. A male executive did not receive a penalty for supporting diversity. The penalty senior women pay for supporting diversity policies or championing other women can lead women who rise higher to show less support for diversity-related policies (e.g., workplace accommodation for child-care). Specifically, while *female workers* generally favor gender equality policies (e.g., flextime) more than men do, research has shown that *female leaders disfavor* such policies as much as men.⁸⁸

More specifically, because science is associated with masculine traits and devalues feminine traits, women who identify with STEM fields often distance themselves from feminine traits, behaviors, and roles (e.g., wearing makeup or expressing interest in having children) to avoid being marginalized in their field.⁸⁹ Additionally, power leads women to be less identified with their gender (e.g., less likely to agree that "Being a woman is an important part of my identity").⁹⁰ The result: "As women internalize negative messages about stereotypically female

⁸⁸ Ng, C. W., & Chiu, W. C. (2001). Managing equal opportunities for women: Sorting the friends from the foes. *Human Resource Management Journal*, 11(1), 75-88.

⁸⁹ Pronin, E., Steele, C. M., & Ross, L. (2004). Identity bifurcation in response to stereotype threat: Women and mathematics. *Journal of Experimental Social Psychology*, 40(2), 152-168.

⁹⁰ Vial, A. B., & Napier, J. (2017). High power mindsets reduce gender identification and benevolent sexism among women (but not men). *Journal of Experimental Social Psychology*, 68, 162-170.

traits, women who are interested in ‘masculine’ disciplines disavow feminine stereotypes and, in turn, harshly judge other women for exhibiting those traits.”⁹¹

In sum, powerful women in masculine fields expect other women to adopt the field’s masculine norms, tend to distance themselves from other women, discriminate against women who exhibit feminine characteristics, and shy away from championing diversity initiatives. Prior experience being victimized by discrimination in their field only exacerbates the perceived threat female leaders face, and therefore tends to increase rather than decrease psychological distancing from and discrimination against other women, especially those they perceive as showing feminine traits, less career commitment, or less willingness to adapt to masculine workplaces. As the following section shows, motherhood represents not only a traditional feminine role, but evokes stereotypes detrimental to perceived workplace commitment.

PREGNANCY AND MOTHERHOOD DISCRIMINATION

Traditional gender roles cast women as wives and mothers, whose purpose is to bear and rear children while tending to their husbands’ domestic needs. By contrast, men’s traditional role as family provider emphasizes commitment to work to bring home a good salary. Thus, traditional gender roles cast working outside the home as incompatible with women’s primary family (caregiving) role, whereas working outside the home constitutes the main way a man “takes care of” his family. In short, motherhood (but not fatherhood) conflicts with the “ideal worker” image: someone who exhibits an almost religious devotion to work, putting work first and never letting outside obligations, such as parenting, interfere with work commitment.⁹²

⁹¹ Rodrigues & Clancy (2019), *op cit.*, p. 5.

⁹² Blair-Loy, M. (2004). Work devotion and work time. *Fighting for time: Shifting boundaries of work and social life*, 282-316.

As a result, even though women have entered the workforce in record numbers, gender stereotypes continue to cause discrimination toward working mothers (as compared to working fathers), known as the “motherhood penalty.”⁹³ Generally, both male and female perceivers tend to discriminate against pregnant women and mothers of young children in employment contexts (in contrast to the warmer treatment pregnant women receive when sticking to domestic roles),⁹⁴ though some studies find stronger discrimination against pregnant women by men than women.⁹⁵

Research finds a wage penalty for motherhood ranging from 5-10% per child.⁹⁶ Although portions of the motherhood penalty can be attributed to choices women make after having a child, research shows that pregnant women and mothers of young children also face employment discrimination when other factors are held constant. In a pair of studies, researchers first assessed people’s beliefs about pregnant employees; in the second study, people evaluated the performance of either a pregnant or non-pregnant employee shown performing simulated job tasks. In both studies, pregnant women were rated as less dependable, less committed, and more irrational and emotional.⁹⁷

In a naturalistic field experiment, female confederates who either did or did not wear a pregnancy prosthesis posed either as customers or job applicants at mall stores. When posing as customers, pregnant women received warm treatment. However, when posing as job applicants,

⁹³Benard, S., & Correll, S. J. (2010). Normative discrimination and the motherhood penalty. *Gender & Society*, 24(5), 616-646.

Budig, M. J., & England, P. (2001). The wage penalty for motherhood. *American sociological review*, 66(2), 204-225.

⁹⁴Benard & Correll (2010), *op. cit.*

⁹⁵Halpert, J. A., Wilson, M. L., & Hickman, J. L. (1993). Pregnancy as a source of bias in performance appraisals. *Journal of Organizational Behavior*, 14(7), 649-663.

⁹⁶Gough, M. & Noonan, M. (2013). A review of the motherhood wage penalty in the United States." *Sociology Compass* 7, 328-342.

⁹⁷Halpert, J. A., Wilson, M. L., & Hickman, J. L. (1993). Pregnancy as a source of bias in performance appraisals. *Journal of Organizational Behavior*, 14(7), 649-663.

women received more hostile behavior (e.g., rudeness) if they appeared to be pregnant versus non-pregnant. A follow-up experiment found that hostility toward pregnant women was stronger when they applied for a stereotypically masculine (versus feminine) job.⁹⁸

When women become mothers, they continue to face discrimination. Both laboratory and real-world audit studies (in which résumés varying parental status and applicant gender are submitted in response to job ads) have revealed substantial employment discrimination against mothers.⁹⁹ By contrast, fathers typically experience either no discrimination or a “fatherhood bonus” (i.e., preferential treatment compared to men without children) because people assume fathers are family providers who need to earn more money, boosting their perceived work commitment. In short, people tend to perceive parents differently based on gender, along the lines of “He’ll be a great worker because he’s motivated to feed his family” whereas “She’s going to be less committed to work because she will be devoting herself to her kids.”

In one laboratory study, participants read a profile of a 32-year old consultant with an MBA degree. Depending on random assignment, the name on the profile was either “Kate” or “Dan” to indicate gender. The profile either did or did not mention that the consultant had recently become a parent. Participants viewed the female (but not male) consultant as less competent if she had a child (versus was childless). Further, participants allocated a lower salary, gave lower promotion ratings, and recommended less corporate investment in training for the mother but not the father.¹⁰⁰

⁹⁸Hebl, M. R., King, E. B., Glick, P., Singletary, S. L., & Kazama, S. (2007). Hostile and benevolent reactions toward pregnant women: complementary interpersonal punishments and rewards that maintain traditional roles. *Journal of Applied Psychology*, 92(6), 1499.

⁹⁹ Correll, S. J., Benard, S., & Paik, I. (2007). Getting a job: Is there a motherhood penalty? *American Journal of Sociology*, 112(5), 1297-1338.

¹⁰⁰ Cuddy, A. J., Fiske, S. T., & Glick, P. (2004). When professionals become mothers, warmth doesn't cut the ice. *Journal of Social issues*, 60(4), 701-718.

In another laboratory experiment, mothers (compared to childless women) were: (a) less likely to be hired (50% for mothers versus 84% for childless women); (b) offered a substantially lower salary (\$11,000 less for a job with a \$135,000–\$180,000 salary range); (c) held to higher performance standards (demanding a higher score on a “management profile exam” to qualify for the job); (d) held to stiffer punctuality expectations (permitted to be late on fewer days); and (d) accorded lower promotion ratings.¹⁰¹ As in other studies, mothers (versus childless women) were viewed as less committed to work and less competent, whereas fathers suffered no such penalties or received a “bonus” (e.g., compared to childless men, fathers were permitted more late days, viewed as more suitable for managerial positions, rated as more hireable and promotable, and recommended for a higher salary). This study demonstrates how perceivers impose double standards on mothers because they stereotype mothers as less committed to the job (compared to childless women, fathers, or childless men). Stereotype confirmation biases lead people to selectively interpret behaviors that might suggest insufficient commitment to work (e.g., occasional tardiness) in a more negative light for mothers compared to non-mothers.

The same researchers who conducted the laboratory study described immediately above conducted an audit study in which they sent 1,276 résumés and cover letters for fictional applicants to 638 potential employers in response to newspaper ads for entry-level and midlevel jobs. Keeping qualifications equal, the researchers varied whether the applicant was male or female, a parent or childless. Childless women received more than twice as many callbacks from employers as equally qualified mothers; by contrast, fathers were just as likely to receive

¹⁰¹Correll et al (2007), *op cit*.

callbacks as childless men.¹⁰² This audit study shows generalization from laboratory findings to “real world” discrimination by actual employers.

Why are mothers penalized at work whereas fathers, if anything, receive a “bonus”? People stereotypically assume that mothers will be the primary caregivers for their children (even if they have spouses), and that mothers will therefore be less devoted to work. By contrast, people stereotypically assume that fathers are the primary provider and, if anything, their work devotion will increase when they have “more mouths to feed.” The more people stereotyped mothers as family caregivers and fathers as family providers, the more they discriminated against mothers and in favor of fathers in recommended salary.¹⁰³

A recent study confirms continuing stereotypes that cast mothers as ill-suited to jobs that require stereotypically masculine agentic (e.g., ambitious, independent) traits.¹⁰⁴ The study examined how people perceive mothers and fathers, compared to childless women and men. People rated fathers and mothers as higher on positive communal traits (e.g., warm, nurturing). However, mothers (but not fathers) were also assigned more undesirable communal traits (e.g., emotional, gullible, impressionable, melodramatic, moody, naïve). Additionally, consistent with past research, people assigned mothers (but not fathers) fewer desirable agentic traits (e.g., ambitious, assertive, athletic, dependable, disciplined, efficient, intelligent, rational, self-reliant). In short, although mothers (like fathers) are perceived as warmer than childless women and men, only mothers receive less desirable ratings on the traits that matter most in masculine jobs.

¹⁰²*Ibid.*

¹⁰³Bear, J. B., & Glick, P. (2017). Breadwinner bonus and caregiver penalty in workplace rewards for men and women. *Social Psychological and Personality Science*, 8(7), 780-788.

¹⁰⁴Ciaccio, V., Bronson, C. A., & Contrada, R. J. (2020). Gender stereotypes and parental status: A comparison of fathers, mothers, and the childless-by-choice. *Psychology of Men & Masculinities*. Advance online publication. <https://doi.org/10.1037/men0000311>

Specifically, mothers get dinged as lacking positive agentic traits (e.g., ambition) viewed as critical to success and are ascribed negative communal traits (e.g., too weak, yielding, and emotional) that suggest they “don’t have what it takes” to succeed.

Research has specifically found a motherhood penalty in scientific fields in academia. In a longitudinal study involving PhD recipients in STEM fields, women (as compared to men) who became parents were much less likely to secure a tenure-track academic position; and those who did were less likely receive tenure.¹⁰⁵

In sum, pregnant women and mothers of young children face considerable employment discrimination due to stereotypical assumptions that they will be primary family caregivers and, as a result, less committed to their jobs and less capable of carrying them out. Men do not face this kind of discrimination, instead receiving a fatherhood bonus.

DISCRIMINATION DUE TO USING WORK-LIFE FLEXIBILITY POLICIES

Motherhood and caregiver discrimination is exacerbated rather than alleviated when mothers participate in workplace flexibility programs. Although many workplaces provide policies that allow flexibility to care for children or other family members, mothers who use or request even modest accommodations become even more stigmatized as insufficiently committed to work.¹⁰⁶ As noted above, people assume that mothers are less committed to and less competent at work. When mothers use even modest, organizationally-sanctioned work-life policy accommodations, they risk reinforcing these negative perceptions. That is, people already stereotypically “suspect” that mothers are no longer committed. Any requested accommodation

¹⁰⁵Mason, M. A., Wolfinger, N. H., & Goulden, M. (2013). *Do babies matter? Gender and family in the ivory tower*. Rutgers, NJ: Rutgers University Press.

¹⁰⁶Williams, J. C., Blair-Loy, M., & Berdahl, J. L. (2013). Cultural schemas, social class, and the flexibility stigma. *Journal of Social Issues*, 69(2), 209-234.

reinforces this perception. Thus, work flexibility programs often become a trap. Despite an official policy that allows or seems to encourage workers to make use of such policies (along with assurances that doing so will not lead to formal penalties), using the policy exacerbates the motherhood penalty. For example, managers in a financial services firm who used formal work–life policies received lower performance evaluations than coworkers who did not.¹⁰⁷

Whether because they see others suffer penalties for using flexibility accommodations or pick up on co-workers’ negative perceptions about mothers, many workers correctly fear they will be stigmatized for requesting work-like accommodations, even when encouraged to do so by their organization. As a result, many avoid using these programs. A study of more than 200 STEM faculty at a prestigious research university found that fewer than 14% took advantage of work-life policies. Unwillingness to use the policy was directly related to faculty members’ perceptions that doing so would result in stigmatization and workplace penalties. STEM faculty members who perceived such programs to stigmatize those who use them were also more likely to report that people in their departments view mothers (compared to fathers) as less committed.

Because belief in workplace devotion represents a strong ideal in many professions, “Resistance to workplace flexibility is not about money. It is about morality”¹⁰⁸ In workplaces where the organizational culture prizes and idealizes single-minded devotion to work, failing to live up to the ideal (e.g., by attending to family obligations) represents a moral failing. Ideal

¹⁰⁷ Wharton, A. S., Chivers, S., & Blair-Loy, M. (2008). Use of formal and informal work–family policies on the digital assembly line. *Work and occupations*, 35(3), 327-350.

¹⁰⁸ Williams (2013), *Op cit.*

worker norms that prize those who work exceptionally long hours are widespread in academia¹⁰⁹ and are particularly strong in the field of engineering.¹¹⁰

EVALUATION PROCEDURES CAN MINIMIZE OR PERMIT DISCRIMINATION

Stereotype-based bias is more likely to intrude on personnel evaluations when evaluators rely on subjective opinions (i.e., judgments that are in “the eye of the beholder”) rather than objective criteria.¹¹¹ Subjective judgments involve criteria that are not clearly defined or allow substantial latitude for interpretation, allowing different evaluators to potentially come to different conclusions. For example, people may disagree in their judgments about another person’s perceived attractiveness (i.e., to the extent that “beauty is in the eye of the beholder” it represents a subjective judgment). Subjective judgments open the door to bias. For example, when evaluators judge a person’s “fit” with the organization (a subjective judgment), they tend to prefer people who are in the same social categories as typical job incumbents. For example, in an audit study, experimenters sent similar résumés to law firms, but altered information hinting at the applicant’s social class (e.g., extracurricular activities such as sailing and polo versus track and soccer). Law firms preferred male candidates who seemed to have high social class backgrounds over equally qualified men perceived as from a lower social class background.¹¹²

¹⁰⁹Cech & Blair-Loy, *op cit.*

Sang, K., Powell, A., Finkel, R., & Richards, J. (2015). ‘Being an academic is not a 9–5 job’: long working hours and the ‘ideal worker’ in UK academia. *Labour & Industry: a journal of the social and economic relations of work*, 25(3), 235-249.

¹¹⁰Singh, R., Zhang, Y., Wan, M., & Fouad, N. A. (2018). Why do women engineers leave the engineering profession? The roles of work–family conflict, occupational commitment, and perceived organizational support. *Human resource management*, 57(4), 901-914.

¹¹¹Heilman, M. E., et al. (2004). Penalties for success: Reactions to women who succeed at male-typed gender tasks. *Journal of Applied Psychology*, 89, 416-427.

¹¹²Rivera, L. A., & Tilcsik, A. (2016). Class advantage, commitment penalty: The gendered effect of social class signals in an elite labor market. *American Sociological Review*, 81(6), 1097-1131.

Therefore, organizations that wish to avoid having bias contaminate their personnel evaluations should rely on objective indicators and compare an individual's scores to carefully determined behavioral benchmarks. For example, imagine evaluating a sales representative according to dollar amount of the person's annual sales. This constitutes an objective measure – annual sales figures do not depend on evaluators' opinions, but on objective data. Unlike judging such subjective criteria as “fit” with the organization or “potential,” different evaluators will not come up with different figures for an objective measure such as annual sales. Using objective measures inhibits bias by not leaving criteria open to evaluator interpretations.

Although objective measures help to prevent biases in ratings, biases can still creep in unless evaluators use predetermined benchmarks and agree on how to weigh different criteria. Consider the annual sales measure example: even though this represents an objective measure, an evaluator charged with making a promotion decision needs to consider whether the individual's sales figures are sufficiently good to warrant promotion. Without an agreed-upon benchmark for what constitutes sufficient sales, different evaluators would be free to come up with different criteria for what is “good enough” for promotion. Meta-analyses of promotion and salary decisions show that when free to do so, evaluators impose double standards that favor men. Even though women, on average, receive similar personnel evaluations to men, men are rewarded (promoted, given bigger salaries and bonuses) significantly more than women.¹¹³ Developing benchmarks for comparisons helps to prevent such bias. For example, imagine that the organization decides that sales representatives who are in the top 30th percentile for annual sales

¹¹³Joshi, A., Son, J., & Roh, H. (2015). When can women close the gap? A meta-analytic test of sex differences in performance and rewards. *Academy of Management Journal*, 58, 1516–1545.

deserve to be promoted. This benchmark clearly defines what is “good enough” and does not allow evaluator bias to lead to double standards for promotion decisions.

Finally, bias can also occur when evaluators are free to determine how much to weigh different criteria. For many jobs, promotion decisions involve multiple criteria (e.g., academic promotions involves assessing teaching, scholarship, grants, departmental contributions, etc.). Bias can occur when evaluators are free to adjust how they weigh various criteria. In one experiment, evaluators judged whether to hire a male or a female candidate for a male-dominated job, police chief. Each candidate’s strongest and weakest qualifications were varied. Depending on random assignment, for some evaluators, the male candidate had more street experience but less education than the female candidate. For other evaluators, the candidates’ strengths and weaknesses were reversed (she had more street experience, he had more education). When left to determine which criterion mattered most, evaluators chose to more heavily weigh whichever criterion favored the male candidate.¹¹⁴ That is, if the male candidate excelled on street experience, evaluators used this criterion as a pretext for hiring him over a better educated female candidate. If the male candidate excelled on education, evaluators valued this criterion more than street smarts, using it as a pretext for preferring him. In other words, by weighing whatever the male candidate was best at as “more important,” evaluators can always justify preferring a man over a woman. Organizations can prevent such shifts in which criteria an evaluator deems “most important” by standardizing how much to weigh each criterion.

In sum, to avoid biases in promotion evaluations, organizations should subscribe to the following best practices. (a) When possible, use objective measures directly tied to job

¹¹⁴Uhlmann, E. L., & Cohen, G. L. (2005). Constructed criteria: Redefining merit to justify discrimination. *Psychological Science*, 16(6), 474-480.

performance criteria (rather than allow evaluators to make subjective judgments that allow biases to affect their interpretations). (b) Establish clear and reasonable benchmarks for comparison to prevent double standards for what constitutes success (i.e., set a consistent bar for promotion). (c) Provide clear guidance on how to weigh different criteria to prevent evaluators from adjusting how criteria are weighed to disguise discrimination.

RETALIATION AGAINST WOMEN WHO COMPLAIN ABOUT DISCRIMINATION

Contrary to popular beliefs, research shows that women are generally reluctant to conclude that they personally are being discriminated against because doing so is psychologically threatening (implying a hostile environment in which one will continue to receive unfair treatment).¹¹⁵ A comprehensive research review concluded that people in devalued groups (including women) generally resist the idea that they are being discriminated against for two reasons. First, people want to believe in a just world (where they and others receive the outcomes they deserve). Second, contemporary discrimination tends to be disguised and therefore more difficult to pin down as discrimination (e.g., people use pretexts such as “she’s too demanding” rather than saying something obviously sexist such as “I don’t want to have a female boss”).¹¹⁶ Thus, when faced with discrimination, people are typically reluctant to claim discriminatory treatment unless they have additional “contextual cues” (e.g., information other women in their position are experiencing the same kind of biased treatment). As a result, people in devalued

¹¹⁵ Crosby, F. (1984). The denial of personal discrimination. *American Behavioral Scientist*, 27(3), 371-386.

Wright, S. C., Taylor, D. M., & Moghaddam, F. M. (1990). Responding to membership in a disadvantaged group: From acceptance to collective protest. *Journal of Personality and Social Psychology*, 58(6), 994.

¹¹⁶ Barreto, M. & Ellemers, N. (2020). Detecting and Experiencing Prejudice: New Answers to Old Questions. In J. M. Olson and M. P. Zanna (Eds), *Advances in Experimental Social Psychology*, Vol. 52, Burlington: Academic Press, 2015, pp. 139-219

groups generally “tend to underestimate (rather than overestimate) the extent to which they are targeted by discrimination, even if this goes against their self-interest.”¹¹⁷

Further, people who complain about workplace harassment or bias risk backlash, even when circumstances support their claim. Specifically, even when evidence strongly suggests that an individual has been discriminated against, observers tend to view an individual who claims discrimination as an overly sensitive “whiner.”¹¹⁸ Men (who are typically are more prone to believe that women are “overly sensitive” in claiming mistreatment) are especially likely to dismiss women’s complaints about discrimination.¹¹⁹

Women who complain about discrimination at work often face both *organizational minimization* (e.g., managers discount their complaints as unsubstantiated or minimize their severity) and interpersonal *punishment* (e.g., hostility and occupational penalties),¹²⁰ especially in male-dominated occupations.¹²¹ In a survey of over a thousand public-sector employees, 67% of those who had vocally resisted interpersonal mistreatment from coworkers or supervisors experienced social retaliation at work (e.g., hostility, exclusion) and 36% also experienced formal workplace penalties (e.g., discipline, demotion).¹²² Thus retaliation, both informal and formal for complaining about discrimination is relatively common.

¹¹⁷ *Ibid*, p. 157

¹¹⁸ Kaiser, C. R., & Miller, C. T. (2001). "Stop complaining! The social costs of making attributions to discrimination." *Personality and Social Psychology Bulletin* 27, 254-263.

¹¹⁹ Glick & Fiske (2001), *Op cit*.

¹²⁰ Bergman, M. E., Langhout, R. D., Palmieri, P. A., Cortina, L. M., & Fitzgerald, L. F. (2002). The (un) reasonableness of reporting: Antecedents and consequences of reporting sexual harassment. *Journal of Applied Psychology*, 87(2), 230.

¹²¹ *Ibid*.

¹²² Cortina, L. M & Magley, V. J. (2003). Raising voice, risking retaliation: Events following mistreatment in the workplace. *Journal of Occupational Health Psychology*, 8, 247-265.

IV. APPLICATION TO CURRENT CASE AND OPINIONS

This section considers how research on stereotyping, bias, and discrimination relates to Dr. Nikolova's case based on case documents I have reviewed (listed in Section III above). I reserve the right to modify any opinions below based on new information that may emerge (e.g., depositions not yet taken). My opinions follow guidelines for social framework testimony, in which experts serve a specific role: educating decision-makers about research findings related to the case. Based on standard practice, the social framework expert points out lines of inquiry for decision-makers, suggesting where case facts are consistent with research findings, but leaves the final decision about the case to the jurors. Therefore, I will not ultimately opine on whether or not discrimination occurred in this case, but point out ways in which case facts are consistent with this possibility. The law also discourages social framework experts from making credibility judgments about disputed evidence. Therefore, I will not judge witness credibility when the facts are disputed, but instead use language to indicate that an opinion is contingent on case decision-makers' credibility judgments (e.g., using language such as "If case decision-makers find claim X credible, then...").

My testimony will stay within the bounds defined by Federal District Court Judge Nancy Gertner, who ruled my testimony as admissible because it:

- *"...provides the jury with a context for considering the evidence before it, as opposed to a roadmap to a particular outcome."*
- *"...expressly refuses to come to a conclusion about whether there has been discrimination in this case because such an opinion is for the jury and ... it is not possible to make any decision to a reasonable degree of scientific certainty about a real world case."*

- “...does not tell the jury what to decide ... it only tells them what to consider.”¹²³

The core question in this case is whether Dr. Nikolova suffered discrimination due to gender bias toward women who become pregnant, have young children, and/or use workplace flexibility policies to accommodate parenthood or caregiving responsibilities. Background information, such as the pervasive discrimination women tend to face in STEM fields, especially engineering, can inform case decision-makers about the general likelihood of discrimination against Dr. Nikolova. Research into biases related to pregnancy, motherhood, and use of workplace flexibility policies provides more specific information about the pattern discrimination, if it occurred, would likely take (e.g., stereotyped perceptions of decreased work commitment and competence). The research cannot “prove” Dr. Nikolova was discriminated against, but can aid case decision-makers in judging whether it was likely to have occurred.

As reviewed above, research shows that women face pervasive discrimination in STEM fields, and engineering in particular, which have historically been resistant and hostile to women. In her appeal to the CCAFR (Committee of the Council on Academic Freedom and Responsibility), Dr. Nikolova alleges that only 4 of 53 tenured faculty within the engineering department are women (i.e., 92.5% of tenured faculty are men and only 7.5% are women). Further, she claims that since she joined the faculty in 2014, all seven men who went up for tenure and promotion received it and all three women (including Dr. Nikolova) who were considered were denied promotion (Nikolova CCAFR Appeal, March 25, 2019, p. 16, UT Austin_00631). Should case decision-makers find this information credible, it suggests background conditions that make discrimination more likely.

¹²³ MEMORANDUM RE: MOTION TO EXCLUDE EXPERT TESTIMONY, January 6, 2009. Judge Nancy Gertner, United States District Court for the District of Massachusetts. Civil Action no. 07cv-12338-NG, p. 4.

More directly, discrimination occurs when evaluators apply different standards to people in different social categories. In her appeal to the CCAFR, Dr. Nikolova presented comparator case information on male faculty who were promoted with what she characterized as similar or lesser qualifications based on performance metrics (Appeal to CCAFR dated March 25, 2019, pp. 2-8, UT Austin_00617 to UT Austin_00623). If case decision-makers find the comparator information credible, research suggests they should focus on whether Dr. Nikolova's qualifications on performance metrics (e.g., number of publications, number of citations, grant dollars received, teaching evaluations for similar courses) were as good or better than relevant comparators who were promoted. The relevant comparisons include both: (a) successful male candidates and (b) successful female candidates who did *not* go through pregnancy, have small children, and/or use flexible workplace policies for caregiving purposes. If case decision-makers find Dr. Nikolova equally qualified on objective measures to such comparison candidates, it would suggest a discriminatory double standard toward her.

Case decision-makers should understand that in a real world case, perfect comparisons do not occur. To establish gender bias with scientific certainty requires a controlled experiment that keeps everything but gender constant to create a perfect comparator (i.e., one could experimentally construct a male Dr. Nikolova with identical qualifications). However, having multiple comparisons can help case decision-makers rule out various alternative explanations. Although each comparison may be imperfect, a consistent pattern among multiple comparisons can more strongly suggest whether an evaluator imposed a double standard.

In this case, case decision-makers' attention must necessarily focus on Dean Wood, who denied recommendations from the Department's Budget Council and College of Engineering's Tenure and Promotion Committee to award Dr. Nikolova tenure. Importantly, the Committee of

the Council on Academic Freedom and Responsibility (CCAFR), which reviewed Dr. Nikolova's appeal of Dean Wood's decision, expressed concern that Dean Wood applied double standards (Memo from CCAFR Subcommittee to investigate the complaint of Assistant Professor Evdokia Nikolova, dated April 28, 2019; hereafter referred to as CCAFR Complaint Report). Specifically, the committee concluded "The Candidate's service at TAMU [Texas A&M University] was ignored in calculating her years in rank, and she was held to a higher standard than if she had been in an up-or-out year" (CCAFR Complaint Report, p. 7, UT Austin_00702), which they characterized as "a matter of serious concern" (p. 5).

Research shows that evaluators are more likely to engage in discrimination when they can establish pretexts that do not seem discriminatory to justify their decision. When criteria or decision-making rules are not clearly defined in advance, biased evaluators can avoid the appearance of discrimination by selectively using rules or criteria that disfavor a specific candidate. For example, case decision-makers should consider whether, as Dr. Nikolova contends, more favorable rules about counting prior experience at peer institutions were applied to male candidates or to women who had not recently had children or made use of flexible work policies for family purposes.

More specifically, research suggests two stages at which discriminatory bias could have affected the decision to deny Dr. Nikolova tenure: (a) biased performance metrics (e.g., teaching evaluations) and (b) biased evaluators. I address each possibility in turn below.

BIAS IN PERFORMANCE ASSESSMENTS: Student Teaching Evaluations

Bias at the first stage (in performance metrics) can lead to a discriminatory outcome even if the people making the tenure decision (i.e., committee members and administrators) do not introduce any further biases. Research on gender bias in teaching evaluations in STEM fields

suggests that Dr. Nikolova may have received lower teaching ratings than comparable male instructors. To my knowledge, there is no direct research on pregnancy bias in teaching evaluations (though, as Dr. Nikolova noted in her appeal, students discriminate based on instructors' perceived physical attractiveness, which pregnancy can affect). However, research has established that people generally view pregnant women working in masculine fields as less competent and less committed to their job. Thus, being visibly pregnant may well have unfairly affected Dr. Nikolova's teaching evaluations.

If so, even if faculty and administrators who evaluated her tenure materials were themselves unbiased, bias baked into teaching evaluations could lead to a discriminatory outcome. In other words, well-meaning evaluators who used a consistent standard for teaching evaluations would inadvertently discriminate if they failed to correct for student biases in teaching ratings. Thus, committee members and administrators should be aware that gender bias may depress female professors' teaching evaluation scores, especially in masculine fields such as engineering. I am not suggesting formally using different standards for male versus female tenure candidates, which seems unfair to men and patronizing to women. However, just as a committee or administrator might consider the tendency for required courses to receive lower ratings than elective courses, they should consider gender bias as a potential mitigating factor when interpreting teaching ratings. Further, research suggest that teaching evaluations do not actually correlate with student learning outcomes. Thus, relying heavily on teaching ratings, which are known to be infected with biases, represents a problematic way to assess teaching quality. More objective measures, such as student performance on common exams, would provide a more objective, bias-resistant measure.

Opinion: Research on gender bias in student evaluations of teaching in STEM fields and pregnancy biases that reduce women's perceived competence and commitment suggest that Dr. Nikolova may have received lower teaching ratings than similar male or non-pregnant female colleagues. Potential biases that can depress a female candidate's teaching scores should explicitly be considered by decision-makers making tenure decisions, as should alternative, more bias-resistant methods (e.g., measuring what students have learned).

EVALUATOR BIAS

Bias can also occur due to stereotypes held by decision-makers. Specifically, stereotypes can influence how faculty or administrative evaluators weigh or interpret information when making personnel decisions. Therefore, even when female candidates overcome earlier obstacles (e.g., biases in student evaluations) to achieve similar qualifications to successful male candidates, bias can creep in among evaluators making promotion decisions.

Research shows that bias is more likely to occur when evaluators rely on subjective judgments and interpretations (e.g., about a person's motives and character). By contrast, when evaluators follow a more objective and well defined method to assess candidates, bias can be minimized. Bias-resistant decision-making processes involve two steps. First, evaluators should gather information using relatively objective metrics to assess job performance. For example, commonly used metrics to assess a professor's scholarship include grant dollars received, number of publications, frequency with which others cite publications (to assess prominence), journal impact factors (an indicator of journal quality). Second, evaluators should compare a candidate's scores on performance metrics to well-defined, predetermined benchmarks (e.g., scores for recently promoted faculty at peer institutions). Having benchmarks or clear standards

for comparison prevents subjectivity in determining whether a candidate's scores are "good enough." When benchmarks are not consistent and well defined across candidates, biased evaluators can simply "move the goalposts" to justify discriminatory decisions. Predetermined benchmarks prevent biased, shifting standards.

Stereotypes are more likely to influence decisions when evaluators rely on their own subjective interpretations and are free to impose their own standards for what's "good enough." In other words, bias becomes more likely when evaluators stray from objective performance metrics and predetermined benchmarks. Therefore, organizations that seek to avoid discrimination in personnel decisions rely on procedures that (a) focus on gathering objective performance measures (i.e., "metrics") on dimensions clearly linked to critical job criteria and (b) use well-defined, consistent benchmarks to evaluate promotion candidates.

Overall, in their tenure evaluation process, the Budget Council exerted considerable effort to adhere to the best practices described above. They used well-defined and relatively objective performance metrics, which they compared to reasonable benchmarks. This decision-making process yielded a positive recommendation for Dr. Nikolova. By contrast, by her own admission, Dean Wood used a different approach. In her interview with the CCAFR (the committee that reviewed Dr. Nikolova's appeal), Dean Wood stated that she engaged in a "holistic" review that, unlike the Budget Council, did not focus on "metrics" (CCAFR Complaint Report, p. 14, Appendix III, UT Austin_00079). The result: a decision that contravened recommendations by Dr. Nikolova's department, her Department Chair, the Tenure Committee for the Engineering School, and the Budget Council (which prepared the tenure review). Below I focus on providing a social scientific framework to aid case decision-makers in thinking through

whether Dean Wood's decision-making process was consistent with bias toward pregnant women, mothers, and women who use workplace flexibility policies for family reasons.

Research suggests specific questions for case decision-makers to consider in their deliberations about whether bias occurred in Dean Wood's decision-making: **(a) Did Dean Wood rely on subjective interpretations (rather than objective metrics and well-defined benchmarks) that more readily allow stereotypes and bias to influence decisions? (b) Were Dean Wood's characterizations of Dr. Nikolova consistent with biases related to pregnancy, motherhood, and/or making use of workplace accommodations for caregiving? (c) How might Dean Wood's personal characteristics, experiences, and beliefs have affected the likelihood of discrimination due to pregnancy, motherhood, or workplace accommodation bias?**

Did Dean Wood Engage in a Subjective Decision-Making Process?

Comparatively, the Budget Council's decision-making processes followed an approach designed to minimize bias at the decision-making stage, whereas Dean Wood's approach did not. Specifically, the Budget Council generally adhered to well-defined metrics and benchmark comparisons to reach their conclusions. For example, with respect to scholarship, they not only counted up how many conference papers and peer-reviewed articles Dr. Nikolova produced, but provided metrics to index quality (e.g., whether a conference had a selective acceptance rate for papers; the "impact factor" for the journals in which Dr. Nikolova published, which assesses how frequently papers published in the journal are cited). To assess Dr. Nikolova's overall scholarly impact, the committee cited her *h-index* (a measure of both productivity and impact based on citations by other scholars). These all represent standard, relatively objective performance

measures. The Council then compared Dr. Nikolova's performance to reasonable comparison benchmarks: how recently tenured faculty at peer institutions scored on the same metrics.

Although, as noted above, teaching evaluations can be biased, the Budget Council minimized any additional bias at the evaluation stage by constructing benchmark comparisons. For example, when possible, they compared Dr. Nikolova's teaching ratings to scores achieved by other faculty in the *same* course, thereby avoiding potentially misleading comparisons (e.g., teaching ratings in required courses are typically lower than ratings in elective courses students actively chose to take). In addition, the Council supplemented student evaluations with evaluations by faculty who sat in on Dr. Nikolova's courses.

In sum, although the Budget Council's review did not (at least in the documents I reviewed) explicitly consider or correct for the possibility of biases infecting the performance measures they used (e.g., possible bias in students' teaching ratings), they pursued a decision-making process designed to minimize additional bias at the evaluation stage. This process led the Budget Council to conclude that Dr. Nikolova's performance warranted promotion.

By contrast, when interviewed by the CCAFR (the committee which investigated Dr. Nikolova's complaint), Dean Wood stated that she used a different decision-making approach. Specifically, the CCAFR's notes (CCAFR Complaint Report, p. 16, Appendix III, UT Austin_00711) state that Dean Wood claimed "She conducts holistic review, not primarily based on metric; decision depends on statements also" (CCAFR Complaint Report, p. 14, Appendix III, UT Austin_00709). More specifically, with respect to teaching, whereas Dean Wood noted that the "Budget council was focused on metrics; she considers the teaching statement very important. The University requires a reflective teaching statement, indicating a change in teaching in response to student comments" (CCAFR Complaint Report, p. 14, Appendix III, UT

Austin_00709). Based on her interpretation of the teaching statement, Dean Wood said “She saw indications of [Dr. Nikolova] not taking teaching seriously” (CCAFR Complaint Report, p. 14, Appendix III, UT Austin_00709).

Decision-makers in this case should focus on whether Dean Wood’s “holistic” review represents a subjective reading of Dr. Nikolova’s materials. Subjective (as compared to objective) criteria have the following qualities: (a) they are less clearly defined, (b) different evaluators may interpret information in very different ways (i.e., the judgment depends on the “eye of the beholder”), and (c) they cannot easily be compared to fixed benchmarks.

Was Dean Wood’s process subjective? Consider her judgment that Dr. Nikolova’s teaching statement was not sufficiently “reflective” to warrant tenure. Imagine that 10 different academic Deans were asked to (independently) judge a teaching statement’s “reflectiveness” and rate whether it was sufficiently reflective to warrant a positive tenure decision. Would different Deans potentially judge the same statement differently? Might different Deans have different definitions for what constitutes sufficient “reflectiveness”? Might different Deans focus on different aspects of a teaching statement to judge this quality? For example, Dean Wood stated that reflection involves professors explaining how they have changed their courses in response to student comments. Might a different Dean focus on other indicators, such as whether a candidate explains her teaching philosophy in great depth? If case decision-makers believe that different evaluators might disagree about how “reflective” a teaching statement is, then “reflectiveness” represents a subjective judgment. If different evaluators might come to different conclusions about “reflectiveness” whose judgment should we trust?

In other words, if there is no clear, obvious basis to resolve an argument about whether a statement is sufficiently “reflective,” it represents a subjective judgment (i.e., a matter of

opinion, not fact). As noted above, subjective judgments permit biases to skew evaluations. A biased evaluator can simply say “this was my opinion based on my years of experience and my definition of reflectiveness” to justify whatever conclusion he or she reaches.

Compare judging a teaching statement’s “reflectiveness” to a more objective process: indexing a tenure candidate’s scholarly impact by calculating the total citation count for their journal articles. The citation count will *not* vary depending on the individual evaluator’s biases. Anyone who researches the candidate’s citation count (e.g., by typing the scholar’s name in *Google Scholar’s* search box) will find the same answer. Citation count does not depend on subjective interpretation. Consider the next question an evaluator must decide: is the candidate’s citation count sufficient for awarding tenure? This decision can also be made objectively and without evaluator bias if evaluators use predetermined benchmarks, such as the citation counts achieved by recently tenured faculty in similar departments at peer institutions. By creating an objective standard, different evaluators will necessarily come to the same conclusions about whether a candidate’s citation count meets tenurable standards. Subjective interpretation and, therefore, possible influence of evaluator bias, are minimized or eliminated. By contrast, if clear benchmarks are not used, an evaluator can arbitrarily decide whether the citation count is “high enough,” opening the door to the possibility of applying discriminatory double standards.

An additional question case decision-makers should consider is whether the criteria an evaluator uses directly assesses actual job performance. Criteria such as scholarly citation-counts directly index scholarly impact, an important job criterion. If no other scholars cite a person’s research, the research has no impact on further scientific advancement. If other scholars frequently cite an individual’s work, the work is (by definition) impactful. By contrast, case decision makers should consider whether subjective judgments about “teaching statement

reflectiveness” have any direct relation to current or future job performance. If “ability to write a reflective teaching statement” is not the same thing as “achieving excellent student learning outcomes,” then it represents an indirect criterion. Although Dean Wood may believe that candidates who, in her judgment, write more “reflective” statements are more likely to achieve future teaching excellence, what systematic evidence does she have that this is actually true?

Subjective criteria also allow bias to flourish by allowing evaluators to use shifting standards to justify discrimination. Imagine being able to move the goalposts after seeing the trajectory of a kick. Someone who had such opportunity could always obtain his or her desired outcome, either a goal or a miss. Lacking predetermined benchmarks and objective metrics, a subjective evaluation process allows the evaluator to choose which criteria to emphasize and to set subjective standards to determine whether the candidate meets the criteria *after* seeing the candidate’s materials. Thus, a biased evaluator can retrospectively choose or define standards to ensure the candidate’s success or failure. For example, imagine two teaching statements.

Candidate A details at length how she has responded to student comments but fails to spend much space articulating her “philosophy” of teaching. Candidate B does exactly the opposite. A biased evaluator could simply shift how she judges “reflectiveness” to praise or to fault *either* candidate. If an evaluator was biased in favor of Candidate A (who responds to student comments, but has an underdeveloped teaching philosophy), she could justify a positive decision by noting how well the person responded to student comments. If the evaluator desired a negative outcome for Candidate A, she could emphasize the importance of a well-articulated teaching philosophy and fault the candidate for failing on this dimension. Subjective criteria allow standards to shift arbitrarily, providing pretexts for discrimination.

Case decision-makers should consider two examples that might potentially represent shifting standards in Dean Wood's justifications for a negative tenure decision. In the CCAFR interview, Dean Wood specifically faulted Dr. Nikolova for seeking advice on improving her courses from a junior faculty member rather than the "best teacher in the department," who presumably has greater expertise. At the same time, her tenure assessment faults Dr. Nikolova for not revising her course syllabus along lines suggested by an undergraduate, someone presumably not an expert, who has probably never designed a syllabus or taught a course.

These complaints have an appearance of shifting standards: Dean Wood faults (rather than praises) Dr. Nikolova for seeking advice from a fellow faculty member because she could have sought out a more experienced faculty member (devaluing the advice of a junior faculty member who has a PhD and teaching experience). Yet Dean Wood simultaneously faults Dr. Nikolova for not revising her course along lines suggested by an undergraduate, apparently valuing advice from someone with no experience teaching a course and no PhD in the field. At best, it seems highly inconsistent to fault a professor for seeking a colleague's advice because more experienced colleagues were available, yet also fault the person for not taking advice from someone totally lacking in teaching experience.

In another example of potential shifting standards, the Dean's Assessment expresses concern about Dr. Nikolova's teaching evaluation scores in EE360C, Advanced Algorithms. Dean Wood ignores comparisons provided by the Budget Council that show Dr. Nikolova achieved similar scores to faculty in the *same* course. Instead, Dean Wood substitutes a different standard: average faculty ratings across *all* courses in the Cockrell School (Dean's Assessment, footnote 2, p. 3, P000003), putting Dr. Nikolova's ratings for the course in a more negative light. As noted earlier, required courses and courses with higher math content tend to receive lower

ratings than elective courses. The Budget Council carefully constructed a fair, “apples to apples” comparison (“How do Dr. Nikolova’s ratings compare to other faculty teaching the same difficult, math-intensive, required course?”). Ignoring this comparison, Dean Wood interjects an “apples to oranges” comparison that disfavored Dr. Nikolova.

In sum, this case involves two contrasting decision-making processes, one by the Budget Council and the other by Dean Wood. The former focused on objective metrics and carefully constructed benchmarks vetted by committees, whereas the latter focused on more subjective judgments by one evaluator, Dean Wood. Research shows the former to resist and the latter to permit biased information processing. Ultimately, case decision-makers will need to decide which process to place more trust in and to determine whether Dean Wood’s conclusions were biased and discriminatory. Social scientific research, however, suggests that Dean Wood’s more subjective approach was more likely to be infected with bias than the Budget Council’s more objective (metrics and benchmarks) approach.

Opinion: In contrast to the more objective and benchmark-based approach taken by the Budget Council, Dean Wood used a subjective approach known to allow bias to affect decisions through subjective inferences and shifting standards.

Were Dean Wood’s Inferences Consistent with Pregnancy, Motherhood, and Workplace Accommodation Bias?

Although a subjective decision-making process makes it more likely for bias to affect the outcome, this does not guarantee that discrimination will occur. Case decision-makers should therefore further consider whether the *content* of Dean Wood’s judgments about Dr. Nikolova

were consistent with stereotypes about pregnant women, mothers, and women who make use of workplace flexibility policies for pregnancy and childcare. Research establishes that, especially in male-dominated fields, pregnancy, motherhood, and requests to use workplace flexibility policies exacerbate or intensify discrimination against women by evoking stereotypes that mothers are committed to family more than to work. Consistent with pregnancy, motherhood, and flexibility biases, inferences about insufficient commitment to work form the central theme in Dean Wood's negative assessment of Dr. Nikolova. Further, these inferences about reduced commitment and effort coincide with the period when Dr. Nikolova became pregnant, gave birth, and took advantage of workplace flexibility policies.

Specifically, Dean Wood focused on comparing Dr. Nikolova's teaching and grant support before versus after the 2015-16 academic year when she had taken "modified instructional duty" (a reduced teaching load) and a "probationary extension" on her tenure clock to accommodate pregnancy and childbirth. In her assessment, Dean Wood concluded that "I do not believe that she [Dr. Nikolova] has taken responsibility for improving her teaching, and I have concerns about the sustainability of her research program" (Dean's Assessment, p. 4, P000005). Dean Wood's conclusion, in other words, were consistent with the form biases due to pregnancy, motherhood, and workplace accommodation use take: perceptions that the individual is no longer sufficiently committed to her work.

In addition to determining whether the content of Dean Wood's concerns are consistent with stereotyping and bias, case decision-makers should consider whether Dean Wood selectively focused on and interpreted information in a manner designed to justify a negative conclusion about Dr. Nikolova's commitment. Confirmation bias – skewed and selective interpretation of evidence – represents a hallmark of biased perception and thinking. That is, did

Dean Wood shade how she interpreted evidence (e.g., Dr. Nikolova's teaching statement) and ignore evidence that favored Dr. Nikolova's case to reach a conclusion consistent with pregnancy, motherhood, and accommodation use bias? The concerns about shifting standards in the previous section represent potential examples of confirmation-biased reasoning.

The CCAFR expressed concerns about Dean Wood's reasoning on the two major criteria – teaching and scholarship – that the Dean used to justify denying tenure. Case decision-makers should carefully examine whether the Dean's reasoning in each instance suggests confirmation bias (interpreting information to justify a biased conclusion) related to pregnancy, motherhood, and flexibility bias. In its complaint review, the CCAFR stated it was “puzzled by disparate assessments of the Candidate's teaching. While the Dean was critical of the Candidate's teaching in her assessment and told the committee that her recommendation of ‘Do Not Promote’ was largely motivated by a desire to see the Candidate improve her teaching, highly respected members of the department's Budget Council state that the Candidate's ‘teaching record clearly exceeds the expectations for teaching by an Assistant Professor in the Department’” (CCAFR Complaint Report, p. 5, UT Austin_00700).

To support her negative opinion on teaching, Dean Wood noted that in 2014 Dr. Nikolova showed the “ability to engage students in the classroom” (Dean's Assessment, p. 1, P000002), but claimed a consistent downward trend in teaching ratings after the 2015-16 academic year. However, the CCAFR expressed concern that the Dean interpreted a lower rating in one class as a “trend” to support her conclusion that Dr. Nikolova was no longer “taking teaching seriously.” They stated that “The downward trend in undergraduate Instructor scores that the Dean notes is not clear to the Subcommittee, given that out of four sections, there is one outlier (3.72) in the Instructor rating, while the other three Instructor ratings are quite consistent

(between 3.92 and 3.95)” (CCAFR Complaint Report, p. 5, UT Austin_00700). The Committee also points out that the Dean ignored relatively consistent and positive ratings in Dr. Nikolova’s graduate course and positive student comments in undergraduate courses; specifically that “53 out of 78 written comments are positive” (CCAFR Complaint Report, p. 6, UT Austin_00701).

Further, the CCAFR expressed concern that the Dean “... does not point out the positive aspects of the Candidate’s teaching as reflected in student and peer evaluations” and fails to recognize Dr. Nikolova’s “teaching innovations.” These innovations included “two new undergraduate courses; [that she] filled a gap in formal algorithm instruction; put her own stamp on a high-demand undergraduate course while collaborating with her colleagues to improve the course; and introduced lunches with the professors (in a team-taught course) in order to give undergraduates access to informal mentoring” (CCAFR Complaint Report, p. 6, UT Austin_00701).

Although the CCAFR thought that Dean Wood’s concern that Dr. Nikolova’s use of teaching assistants to develop and grade assignments might have merit, they generally expressed concerns about how the Dean interpreted information about Dr. Nikolova’s teaching. Specifically, the CCAFR noted that the Budget Council’s *Assessment on Teaching Performance of the Candidate* concluded that Dr. Nikolova “takes her teaching obligation seriously and has strived to improve her teaching effectiveness while addressing the needs of the department and its students... [which] would seem to contradict the Dean’s judgment that the Candidate does not take responsibility for improving her teaching” (CCAFR Complaint Report, p. 6., UT Austin_00701).

On scholarship, the CCAFR was “puzzled by the Dean’s concerns about the sustainability of the Candidate’s research program” which contradict “The positive votes of the

departmental Budget Council, the Chair, and the School's Advisory Committee" (CCAFR Complaint Report, p. 5, UT Austin_00700). The Committee cited Dr. Nikolova's ongoing NSF Career Grant as continuing support, as well as "additional grants while at UT Austin, including an NSF grant for approximately \$480,000" (CCAFR Complaint Report, p. 5, UT Austin_00700).

In other words, both in evaluating teaching and scholarship, the University committee assigned to review Dr. Nikolova's appeal expressed concern that the Dean selectively interpreted information, emphasized negative information, and ignored positive information, all hallmarks of biased information processing. Further, the theme that threads through these negative assessments is the same: inferences that Dr. Nikolova is no longer sufficiently committed to her job, precisely what the research suggests would occur if a biased evaluator relied on stereotypes about pregnancy, motherhood, and flexibility policy use.

Opinion: Dean Wood's perception that Dr. Nikolova showed decreased work commitment after pregnancy and childbirth is highly consistent with stereotypes toward pregnant women, mothers, and women who make use of workplace accommodations for family reasons. Both in terms of process (e.g., subjective interpretation) and content (inferred lack of commitment), the Dean's decision-making about Dr. Nikolova is consistent with bias toward pregnant women, mothers, and workplace accommodation policy use.

Do Dean Wood's Personal Characteristics or Attitudes Make Bias More or Less Likely?

This section applies research that may help case decision-makers to understand how Dean Wood's attitudes, experiences, and gender might relate to the likelihood of biased decision-

making. These factors are not determinative; nevertheless, research suggests they can influence the *probability* that an evaluator will exhibit bias against women in STEM fields.

Although people may commonly assume women are less likely than men to discriminate against women, research (cited in the scientific section of this report) shows this assumption does not hold under certain circumstances. Specifically, women who attain powerful positions in male-dominated (including STEM) fields tend to discriminate as much as or even more severely than men when judging junior women's work commitment. Senior women in masculine fields achieved their positions by adapting to a masculine organizational culture and working especially hard to prove themselves and to overcome others' biased expectations and treatment. Women who achieve status in these fields tend to present themselves as having more stereotypically masculine traits (e.g., ambitious, tough, totally committed to the job) and to disidentify with or disdain stereotypically feminine traits (e.g., emotionality). They often expect those who follow to exhibit similar traits, creating bias against junior women perceived as not being "tough enough" or committed enough to succeed in a field that places significant obstacles in their path.

People may also wrongly assume that senior women who have personally experienced discrimination in their field would show increased sympathy toward junior women and increased commitment to combatting discrimination. Research shows instead that the discrimination senior women have experienced can create a defensive reaction that leads them to *avoid* championing the women who follow. Senior women in masculine fields (including STEM) occupy a precarious position in which the hard-won respect they have earned can crumble if others view them as backing diversity initiatives. As a result, senior women often become dismissive toward policies perceived as accommodating women, such as workplace flexibility or parental leave policies for mothers. Therefore, the experience Dean Wood recounted in an interview – when a

male scientist expressed surprise at the quality of her conference talk because he expected less from a woman – (Dean Wood 2020 Pinnacle Award Winner Interview; retrieved from

<https://www.hartenergy.com/exclusives/2020-pinnacle-award-winner-dr-sharon-l-wood-university-texas-186588>) does not lessen the likelihood that she, in turn, would discriminate.

Based on prior research, when it comes to evaluating a junior woman who has recently had children and used workplace flexibility policies (known to elicit stereotypes of insufficient work commitment), a female (compared to a male) Dean would be as likely or even more likely to exhibit bias.

The 2020 Pinnacle Award interview with Dean Wood further reveals information about her experiences and attitudes. When the interviewer asked Dean Wood about work-life balance, she responded: *“I think that work life balance is a bit of a myth because you can’t do everything and ‘work life balance’ implies that you can... I set time for myself early in the morning. The 5:30-7:30 time frame is when I exercise... [although] there are always emergencies that come up. I have put some structure around my life.”* This response suggests an attitude that highly values work devotion, with little room for any non-work obligations, especially those (like childcare) that may be less predictable than setting aside early morning pre-work hours for exercise. Rather than speaking to how organizations can accommodate family responsibilities, Dean Wood emphasizes individuals’ personal responsibility to structure their lives around work.

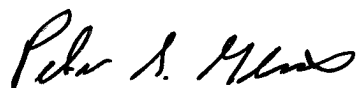
Opinion. Research suggests that Dean Wood’s gender and prior experiences with discrimination would not serve to protect against bias against Dr. Nikolova, but rather could make discrimination more likely. Further, Dean Wood’s attitude that *“work life balance is a bit of a myth”* is consistent with an ethos prizing work devotion that

exacerbates bias against pregnant women, mothers, and women who use workplace accommodation policies for family purposes.

V. COMPENSATION & SIGNATURE

My rate of compensation is as follows:

- \$400 per hour for review of documents and report writing
- \$5000 per day for deposition and trial testimony
- Payment made in advance for deposition and trial testimony



Peter Glick, Ph.D.

April 19, 2021

Date

VI. ATTACHMENT A: CURRICULUM VITAE**Peter Glick, PhD.****SUMMARY**

Peter Glick, PhD is the Henry Merritt Wriston Professor at Lawrence University and a Senior Scientist with the Neuroleadership Institute. Co-author of groundbreaking theories of prejudice and sexism, Dr. Glick's highly influential research has received [over 40,000 scholarly citations](#). As a visiting Professor of Management and Organizations at Northwestern University, he co-designed the Kellogg School of Management's first course on diversity management. He has also taught executive education at Harvard University and developed anti-bias initiatives for Fortune 500 companies (including Airbnb). The *Harvard Business Review* recognized his *stereotype content model* (co-developed with Susan Fiske, Princeton, and Amy Cuddy, Harvard) as a "breakthrough idea for 2009." His highly cited work on *benevolent sexism* (with Susan Fiske) has revolutionized understanding of discrimination against women, receiving the Allport Prize for best paper on intergroup relations. In addition to more than 80 articles, he has co-edited or co-authored three books, including the *Sage Handbook of Prejudice*. He has testified in federal court as an expert witness on sex discrimination. Media outlets that have covered his work include the *New York Times*, *Harvard Business Review*, and *PBS NewsHour*. Website: <https://faculty.lawrence.edu/glickp/>

ADDRESS

Department of Psychology
Lawrence University
711 E Boldt Way
Appleton, WI 54911

phone: (920) 716-4195
email: glickp@lawrence.edu
web: <https://faculty.lawrence.edu/glickp/>

EDUCATION

Graduate:	University of Minnesota Ph.D., 1984 Specialization in Social Psychology Supporting Program in Statistics
Undergraduate:	Oberlin College A.B., 1979 Major in Psychology

ACADEMIC APPOINTMENTS

Henry Merritt Wriston Professor in the Social Sciences, Lawrence University, 2007-present

Senior Scientist, Neuroleadership Institute, 2018 to present

Visiting Professor of Management and Organizations, Fall 2009, Kellogg School of Management, Northwestern University

Full Professor of Psychology, 1997-present, Lawrence University

Director of Lawrence Fellows Program, 2004-2007 (designed and implemented a post-doctoral Fellows program across all academic disciplines)

Faculty Associate to the President, 2005-07, Lawrence University

Director, Lawrence University London Centre, 1998-99

Chair of Psychology Department, 1992-93; 1994-96, 1997; 2000-2002, Lawrence University

Associate Professor of Psychology, 1990 to 1997, Lawrence University

Assistant Professor of Psychology, 1985 to 1990, Lawrence University

HONORS AND AWARDS

Excellence in Scholarship Award, Lawrence University, 2011. Awarded to a faculty member who has demonstrated outstanding scholarly contributions.

Harvard Business Review recognized joint research with Susan T. Fiske and Amy J. C. Cuddy on warmth and competence as fundamental dimensions of social perception in “The *HBR* List: Breakthrough Ideas for 2009”

Gordon W. Allport Intergroup Relations Prize for best paper on intergroup relations (awarded by the Society for the Psychological Study of Social Issues and Harvard University):

2005-06: Honorable Mention for Cuddy, A. J. C., Fiske, S. T., & Glick, P. “The BIAS Map: Behaviors from Intergroup Affect and Stereotypes”

1995: Award for Glick, P. & Fiske, S. T. "The Ambivalent Sexism Inventory: Differentiating Hostile and Benevolent Sexism" (*Journal of Personality and Social Psychology*)

Elected as President of the *Society of Experimental Social Psychology* for 2009

Elected as a Fellow in the following professional psychology organizations:

Society for the Psychological Study of Social Issues, Division 9 of APA (2007)
Society for the Psychology of Women, Division 35 of APA (2007)
American Psychological Society (2004)
American Psychological Association (2004)
Society for Personality and Social Psychology, Division 8 of APA (2004)

EDITORIAL BOARD APPOINTMENTS

Journal of Personality and Social Psychology: IRGP (2003-2018)
Personality and Social Psychology Bulletin (2002-present)
Group Processes and Intergroup Relations (2010-2013)
Psychological Inquiry (2002)
Psychology of Women Quarterly (2003-present)
Social Issues and Interventions book series (sponsored by SPSSI; 2008)

COUNCIL POSITIONS IN PROFESSIONAL ORGANIZATIONS

Society of Experimental Social Psychology Executive Council, 2007-2010
Society for the Psychological Study of Social Issues Council, 2007-2010

VISITING AND SUMMER INSTITUTE POSITIONS

Universidad de Granada, Spain, *Consultation*, Supported by a Spanish Government grant for a 1-2 week visits to lecture, consult, and continue research collaborations, December 2007, June 2008, November 2008.

University of Marburg and University of Bielefeld, Germany, *Summer Institute*, September 2007

Society for Social and Personality Psychology's *Summer Institute in Social Psychology*, University of Texas at Austin, July 2007. Co-instructor with Alice Eagly (Northwestern University) for 2-week session on Gender, Power, and Roles

Pontificia Universidad Católica de Chile, June 2003. Two weeks as a visiting "outstanding psychologist" (sponsored by a Chilean government grant)

University of Jena, Germany, April 2002. Research consultant for the International Graduate College (a consortium involving the University of Jena, University of Kent at Canterbury, and University of Louvain-la-neuve in Belgium)

Visiting Associate Professor, University of Massachusetts at Amherst, 1993-94

BOOKS

Rudman, L. A., & Glick, P. (2021). *The Social Psychology of Gender: How Power and Intimacy Shape Gender Relations* (2nd Ed.). New York: Guilford Press.

Dovidio, J. F., Hewstone, M., Glick, P. & Esses, V. M. (Eds.). (2010). *The Sage Handbook of Prejudice, Stereotyping, and Discrimination*. London: Sage Publications.

Dovidio, J. F., Glick, P., & Rudman, L. A. (Eds.). (2005). *On the Nature of Prejudice: 50 Years After Allport*. Malden, MA: Blackwell Publishing.

EDITORSHIP OF SPECIAL JOURNAL ISSUES

Berdahl, J. L., Cooper, M. & Glick, P. (2018). Work as a masculinity contest. *Journal of Social Issues*, 74(3).

Lee, T., Fiske, S. T., & Glick, P. (2010). Special Issue on Ambivalent Sexism. *Sex Roles*, 62.

PUBLICATIONS

Glick, P. (2020). Take that detour: Unexpected influences on a research career. In King, E., Roberts, Q., & Hebl, M. (Eds.) *Perspectives on Work and Gender* (pp. 101-116). Information Age Publishing.

Glick, P. (2020). Masks and emasculation: Why some male leaders won't take COVID-19 safety precautions. *Scientific American*, 322(2), 10.

Ramati-Ziber, L., Shnabel, N., & Glick, P. (2020). The beauty myth: Prescriptive beauty norms for women reflect hierarchy-enhancing motivations leading to discriminatory employment practices. *Journal of Personality and Social Psychology*, 119, 317-343.

Glick, P. (2019). Gender, sexism, and the election: did sexism help Trump more than it hurt Clinton?. *Politics, Groups, and Identities*, 7(3), 713-723.

Berdahl, J. L., Cooper, M., & Glick, P. (Nov 2, 2018). How masculinity contests undermine organizations and what to do about it. *Harvard Business Review*.

Glick, P., Berdahl, J. L., & Alonso, N. M. (2018). Development and validation of the masculinity contest culture scale. *Journal of Social Issues*, 74(3), 449-476.

Berdahl, J. L., Cooper, M., Glick, P., Livingston, R. W., & Williams, J.C. (2018). Work as a masculinity contest. *Journal of Social Issues* 74(3), 422-448.

Diekmann, A. B., & Glick, P. (2018). The role of attitudes in gender. In *Handbook of Attitudes, Volume 2: Applications* (pp. 408-428). Routledge.

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- Bear, J. B., & Glick, P. (2017). Breadwinner bonus and caregiver penalty in workplace rewards for men and women. *Social Psychological and Personality Science*, 8(7), 780-788.
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- Baily Wolf, E., & Glick P. (2016). Competent but cold: The Stereotype Content Model and envy in organizations. In R. H. Smith, U. Merlone, & M. Duffy (Eds). *Envy at work and in organizations*. Oxford: Oxford University Press.
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Glick, P. (1987, August). Stars in our eyes. *Psychology Today*, 6-7.

Glick, P., & Cohen, P. (1987, April 15). Prejudice, human nature, and contemporary history. *Black Issues in Higher Education*, 4-6.

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SELECTED RECENT MEDIA COVERAGE

CNN Business, Dec 2018, on masculinity contest research

Harvard Business Review, Nov 2018, coauthored article on masculinity contest research

New York Times, Nov 2018, on psychology of anti-Semitism

Harvard Business Review, July 2017, on patronizing behavior toward women at work

Boston Globe, Oct 2017, coauthored op-ed with Amy Cuddy on gender stereotypes

PBS NewsHour, June, 2016, on sexism in the presidential election with interactive

INVITED TALKS

Stanford University (keynote, VMware Women's Innovation Lab corporate sponsors), 2018

Harvard Business School, Gender and Work Symposium, 2017

University of Leuven (KU), 2015 (keynote address and workshops)

Georgetown University McDonough School of Business, 2015

Harvard Business School, 2013

Union College, 2011

INSEAD, 2009

Kellogg School of Management, Northwestern University, 2009

Rotman School of Business, University of Toronto, 2009

Yale University, 2009

School of Management, Yale University, 2009

The Johnson School of Business, Cornell University, 2009

Hamilton College, 2009

Jones School of Management, Rice University, 2008

Kellogg School of Management, Northwestern University, 2008

New York University, 2007

Universidad de Granada, 2007

European Association of Experimental Social Psychology, 2007

University of Minnesota, 2006

Stanford University, 2006
Yale University, Hovland Memorial Lecture, 2005
University of Wisconsin-Madison, 2005
Miami University of Ohio, 2005
Purdue University, 2005
University of Western Ontario, 2004
Princeton University, 2004
Midwestern Psychological Association, Chicago, May 1990

ANTI-BIAS TRAINING

- ***Airbnb:*** Co-developed online anti-bias training for hosts, 2016
- ***Cognizant:*** Helped to develop anti-bias training, 2016-17)

EXECUTIVE EDUCATION

- ***Stanford VMWare Women's Innovation Lab keynote for corporate sponsors,*** 2018
- ***Harvard Kennedy School,*** 2017 & 2018
- ***Bayer Healthcare,*** 2016
- ***Harvard Business School,*** 2014

EXPERT WITNESS LITIGATION LIST (most recent listed first)

Paulette Fauceglia v. University of Southern California (2020)
U.S. District Court for Central District of California
Case No. 2:19-vcv-04738-FMO-GEM (provided report, deposition)

Pamela Ries, EdD. v. University of Iowa (2020)
District Court of Iowa for Polk County (provided report)

Sejal Quayle, M.D. v. Catholic Health Initiatives Colorado, Centura Health-Mercy Regional Medical Center, Centura Health Physician Group, & Will McConnell (2020)
United States District Court for the District of Colorado
Case No. 19-cv-02175-KLM (provided report)

Alexandra Criscione v. UnitedHealth Group Inc., United HealthCare Services, Inc., UnitedHealth Networks, Inc., Specialized Care Services, Inc. and Optum Group, LLC (2019)
U.S. District Court for the Middle District of North Carolina, Greensboro Division
Case No. 1:18-CV-856 (provided report, deposition)

Deepa Soni, M.D. v. Robert Wespiser, M.D., Timothy Counihan, M.D., Berkshire Medical Center, Berkshire Faculty Services, Inc., and Berkshire Health Systems, Inc. (2019)
U.S. District Court for the District of Massachusetts
Case No. 1:16-cv-10630 (provided report, deposition)

Angela Gardner v. Serve 20:28, Inc.; Lincoln McIlravy; Old Capitol Hospitality, LLC; Cantilever hotels, LLC. (2018)
Iowa District Court for Johnson County
Case No. LACV078706 (provided report)

Stephenie R. Ruffin v Schindler Elevator Corp. (2017)
U.S. District Court for the Eastern District of Wisconsin, Milwaukee Division
Case No. 16-cv-01537 (provided report)

Debby DeLuca v. Sirius XM Radio, Inc. (2016)
U.S. District Court: Southern District of New York
Case No. 12-CV-08329 (provided report)

Kimberly A. Tornabene v. Northwest Permanente, P.C. (2016)
U.S. District Court: District of Oregon, Portland Division
Case No. 3:14-cv-01564-SI (provided report)

Lesley Cooney v. Missoula Spartan, LLC, Subaru of Missoula (2015)
Montana Department of Labor and Industry. Office of Administrative Hearings
Human Rights Bureau Case No. 0141016978, Hearings Case No. 1254-2015 (provided report)

Lynette Sherman v. Greenbrier Hotel Corporation (2010).

U.S. District Court: Southern District of West Virginia at Beckley.
Civil Action No. 09-C-1211 (provided report)

Sagun Tuli, M.D. v. Brigham & Women's Hospital, Inc. and Arthur Day, M.D. (2009)
U.S. District Court, District of Massachusetts; Case Number 07CV12338-NG (provided report, deposition, testified in Federal Court)

Theresa M. Metty v. Motorola, Inc. (2006)
U.S. District Court, Northern District of Illinois – Eastern Division; Case Number 05C 4113
(provided report, deposition, testified in Federal Court)

Shaffer v. Converge Medical, Inc (2004)
Superior Court of the State of California, Alameda County; Case Number RGO 3118693
(provided report)

Carlson et al. v. C. H. Robinson Worldwide (2003)
Hennepin County District Court; Case Number CV-02-3780 (JNE/JGL) (provided report)

Stephanie Adams v. Burroughs-Wellcome Company and Paul Hossenlopp (1995)
Superior Court of New Jersey; Docket Number L-411-95 (provided report, deposition)

Kelley v. Drexel University (1994)
U.S. District Court, Eastern District of Pennsylvania; Case Number 94-CV-5336 (provided report)

Alma P. Navato v. St. Luke's Hospital of Kansas City, et al. (1991)
U.S. District Court, Western District of Missouri; Case Number 90-0068-CV-W-6 (provided report)